Amateur Radio

VOL 55, No 7,
JULY 1987

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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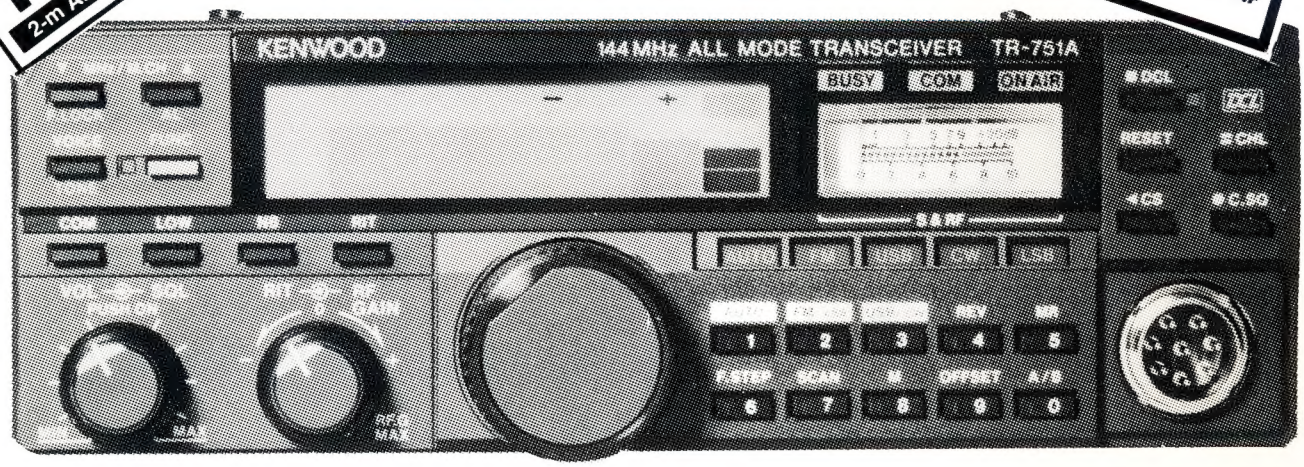

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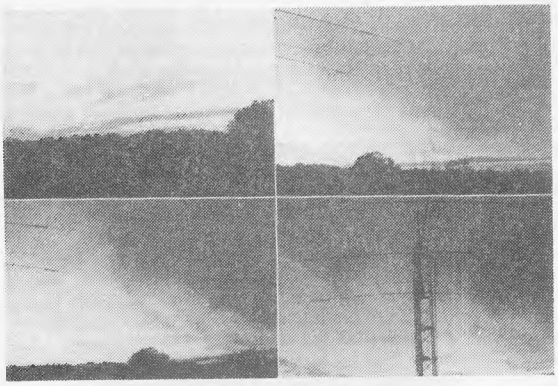

FRONT COVER: Storm Brewing — These photographs were taken over a short period of time as a storm approached the beam at the QTH of Earl VK3BER, Frankston.
—Photographs courtesy Earl Russell VK3BER

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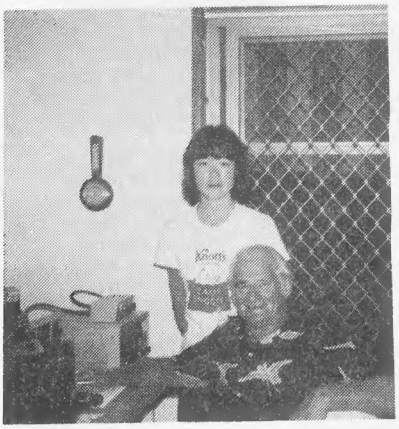

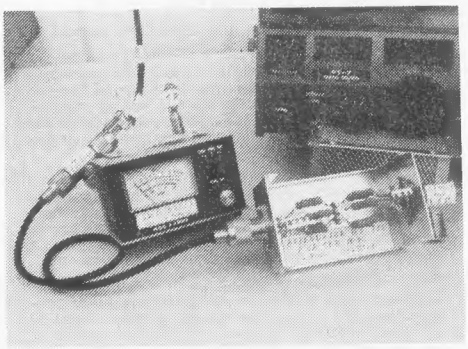

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Editor's Comment

HELP!

As mentioned in the account last month of the Federal Convention, there was discussion by a financial sub-committee of the current fortunes of this magazine. What it boils down to is that our present expenses exceed our present income and that things are getting worse!

We have two sources of income. The largest is the amount which you, the members, pay us from your subscriptions, in effect to buy your monthly copy of AR. In 1986 this was close to the budgeted figure of $100 000. For 1987 it has been increased to $130 000, and hopefully kept at that level in 1988. If in round figures you divide 130 000 by 8000 members and 12 issues a year the answer is $1.35 per copy. That is what you are paying for your magazine. Two years ago, in the July 1985 editorial, we went through a similar exercise. The cost then was about 95 cents per copy. We can go back into other past financial statements and come up with figures such as 97 cents in 1982, 84 cents in 83, 88 cents in 84, and $1.14 in 1986.

We are all too painfully aware that the price of everything keeps going up. Particularly over the last few years, prices have risen considerably faster than wages. Figures published in the Melbourne "Sun" on the day I write this, show rises over the period March '83 to December '86 ranging from about 25% for milk, meat and bread, through 50% for beer and tea, to 90% for fresh vegetables. Petrol has risen by about 30%. AR magazine in the same time has gone up (at most) by 36%. Unfortunately, few peoples' incomes have risen commensurately so our average standard of living is slowly falling. This is apparent from the responses already received to the May editorial, in which I discussed membership non-renewals. It's not so much that subscriptions are rising, as that peoples' ability to pay is falling. Incidentally the membership situation is not really quite as bad as it appeared in that editorial. Certainly many have dropped out, but others have joined or rejoined. The net overall loss of members seems to be around 200.

Our second source of income is advertising. In a good year, such as 1984, it brought in nearly $49 000. But for various reasons, among which once again must be the customers' ability to pay, it has slowly fallen since, to about $37 000 last year, and we expect only $34 000 this year. Is there a business in your area for whom the amateur market is still untapped? Tell them about AR. It may be just the advertising vehicle they've been looking for, with influential technically-qualified readers throughout Australia, and some overseas as well.

Now to expenses. Our biggest single outlay is for printing, followed by postage. Budget expectations for 1987 were $65 000 and $33 000, but both are set to increase more than expected. Cost of paper has jumped by 23% and postage will rise soon because Australia Post is now required to pay sales tax. Typesetting and production total about $40 000, wrapping and addressing $10 000, but no significant changes are expected here. Office salaries and expenses, and costs of drafting work make up the rest.

Do you see the problem? We must reduce expenses, or increase income, or preferably both. In doing so, we can't afford to reduce our standard of quality, as even more members are then likely to become ex-members! The suggestion made at the Convention was to revert to the single colour covers we used to have up to 1981. This would slightly overcompensate the rise in paper cost, but only if the cover paper grade was the same as the text. We could reduce paper quality even further. Neither measure is attractive.

There is another possibility. We could publish six issues a year, of 128 pages, instead of 12 issues of 64 pages. The only loss here would be in topicality. After all, the "Womens' Weekly" is now a monthly, undoubtedly for similar reasons. What reasons? In our case, half as many expensive colour covers. Half as much for postage (although this may need slightly cheaper, lighter paper). Probably the various columnists and I wouldn't "rave on" for twice as long, so more room for technical articles, always your favourite reading.

All of these possibilities and more are on the agenda at the Executive meeting of May 26. I will leave space for a last-minute postscript to announce the decision.

Bill Rice VK3ABP
Editor

(PS. The Executive was unwilling to cut back on the number of issues per year. For the time being, while all other possible avenues of cost-reduction are being investigated, it was agreed that we should change to 2 colour covers on the present glossy paper, but reduce the main paper quality. Hopefully, this should just balance the budget. 73, VK3ABP)

A REMEMBRANCE DAY LOG PROGRAM WRITTEN IN PASCAL

Without question, the most valuable aid an entrant in the RD Contest can have is a computerised log keeper.

John Drew VK5DJ
34 Aitken Street, Millicent, SA. 5280

Although it is certainly helpful to have your contacts printed out for you, the most essential part of the process is to check for duplicates. Many of our better operators do this very well with dupe sheets and get to be very fast at it, or have a big family of helpers, however, there is no doubt that computerised is fastest and most accurate.

For several years now I have successfully used versions written in Basic and these programs worked very satisfactorily. Speed was always a problem or, if speed up techniques had been used, then memory usage became inefficient when call signs were broken up into groups. Towards the end of a long contest with, say, 400 plus contacts in the log, it could take up to two or three seconds to check. So early in 1987, I wrote a machine code routine to place the calls in memory and do the searching for dupes, at the same time, a complete rewrite of the Basic program was begun. (Those who have been programming for a while will know how messy a re-written Basic program can get).

The whole thing was lightning fast and I could see real potential. Around about then I discovered that there were some real languages out there that could do things only dreamed about by Basic or Assembler programmers. Turbo Pascal was the only way to go, said the write-ups and advertisements.

(Using the Eratosthenes sieve benchmark Pascal completed 10 iterations in 23.5 seconds, interpreted Basic takes about 2000 to 4000 seconds depending on which Basic — a speed factor of 100 in dealing with arrays and simple arithmetic). Still speed was only part of it. The power of Pascal resulting from its structure has to be played with to be fully appreciated. So I forgot about the composite Basic/Machine code log program and set out to do it in Pascal. As can be seen from the accompanying printout, I managed to have a version up and running in time for this year's RD.

In essence, a Pascal program has a main program (usually located right at the end of the program) with a number of procedures (or subroutines, if you like) defined beforehand. Each procedure is called by its name.

It is necessary to define variables before you use them so these appear at the beginning of the program, if they are global, (and apply throughout the program) or at the beginning of a procedure if they are local (apply only in that procedure). This turns out to be a programming advantage, especially when your documentation is as sloppy as mine! In retrospect, I should have made more efficient use of variables and used more local types.

It is not expected that everyone, or anyone, will want to copy the program as is, but maybe some of the ideas could help others. Anyway, it was my first "biggish" Pascal program and it certainly works well. I am quite prepared to accept that it might be improved in a number of areas; eg next time I would use the RECORD structure for storing information about contacts rather than storing it in a string array — although it may not work better.

This is what the program can do when compiled in a 64k Microbee:

* It can store 1500 contacts with five or six kilobytes to spare.
* With 500 entries you are just becoming aware of the delay between hitting return and gaining approval to continue.
* It checks to see if the call and the particular band already exist in memory. If they do, it checks to see if the mode was in the same category. If not it allows the contact to proceed. If it does find a dupe it beeps and puts up:

Band	Call Sign	No Sent	No Rcvd	Time	Mode
eg:					
80	VK3UM	105	172	11.52	SSB

If the calling station is unconvinced, providing him/her with the time and the number sent usually sorts out the dupe.

* The operator can change the time or the date. Normally, the computer looks after the time by means of the interrupt driven in-line machine code procedure RUNCLOK. A one second pulse is externally derived from a crystal and out onto the clock pin of the reprogrammed RS232 port.
  This reprogramming and setting of interrupt mode is performed in procedure SETCLOK.
* The time automatically updates at the bottom of the screen every second.
* Contacts can be altered later in case a mistake was made.
* Band and mode may be changed, immediate print or delayed print selected, contacts may be saved to disc (RD.DAT) and automatic creation of a back up file (RD.BAK), loading previous contacts at the start of a new session are other important facilities.
* Auto checking of entries is carried out; eg call signs may only have letters, numerals or a / within them. Numbers must be pure integers (foreign bits are not permitted). All letters are converted to upper case irrespective of keyboard entry.
* Call signs beginning with a number are assumed to be VK calls and have VK automatically placed as a prefix.
  Eg, if VK3UM calls me, I type in 3UM. The computer checks for VK3UM on the mode and band in use.
  However, the full call sign can also be keyed in and all the funny commemorative calls are also accepted.
* The machine displays my next number to send.
* Call signs are checked for sloppy operators. Eg, VK3SLOP identifies as VK3SLOP/P4 (portable 4) and calls you later without the portable suffix, the program needs to be able to spot this or a dupe could be missed.
* Faulty contacts can be deleted and become invisible, although it is possible to undelete them if necessary. It works by changing the band to '0' and subsequently checking for band '0' before other functions.
* Printing of each contact, keeps track of page numbers, score, scrolling of pages, last contact printed (if print is being held to save a second, or stop the noise), prints from certain contact numbers if required.
* By typing FINISHED it finishes off the log. A separate word processor file looks after the front page details.
* The program occupies 18k of program space when compiled and, in my case, runs under CPM in a Microbee(CIB).
  Just type RD to run it.
* All facilities are menu driven.

GENERAL INFORMATION

The contact information is stored like this:

BYTE NUMBER

1	2 3 4 5 6 7 8 9 10	11	12 13 14	15 16	17 18
band	call sign	mode	no rcvd	Hrs	Mins

The number sent is not stored, that is inherent in the array counter. Because this version of Pascal packs arrays automatically, not all contacts occupy 18 bytes. The longest call I could think of was VK5ABC/P4 — nine bytes long. Most will occupy only five or six bytes. This meant a bit of fancy footwork when checking for sloppy operators (see above) and in the general dismantling procedure and costs a bit of time but not too much.

The band is stored as a single character. 160 metres is stored as char(160), two metres is stored as char(2), etc. Saves a little space!

There are other space savers that occurred to me, such as storing the time and no received in BCD. This could save a couple of bytes or so, but as it is not in the high speed section of checking, and I am never going to work more than 1500 contacts in the RD Contest, it was a bit academic. I might do it one day just for fun though.

A typical contact goes like this:

	VK3UM replies to my CQ RD
* TYPE	3UM <return>
	machine checks call, band and mode
	finds no dupe so puts up my number for him (105), his call in full and awaits my input of his number.
	I give VK3UM my number (105), he gives me his (172).
* TYPE	172 <return>

Machine then reads the time and prints out the entry in columns under headings:

Time	Band	Mode	Call Worked	No Sent	No Rcvd	Points
11:52	80	SSB	VK3UM	105	172	1

and returns Main Menu ready for next entry. The program permits the operator to opt out of a contact at the point when it awaits the number from the other station. A <return> at this point abandons the contact, resets counters and returns to Main Menu.

Note, a typical contact requires typing a total of six or seven characters and hitting <return> twice. A scoring rate of three contacts a minute is a piece of cake (if the stations are there).

To convert this program to another machine, eg an IBM, all that should be required is to delete Procedures SETCLOK, RUNCLOK, GETCLOKRUN, GETCLOK, TIMECHANGE and GETTIME. The last three will need to be rewritten to gain access to the inbuilt clock in the computer.

The machine code in-line statements of SETCLOK and RUNCLOK are written to suit the Z80 and the ports of the Bee.

You will have to supply the one second pulse to pin 24 of the RS232 socket to make the clock work and connect a parallel connected printer to the parallel port.

```
(COMPILE FROM 20E9H to allow for storage of time - Written by J.F.Drew)
PROGRAM RD86T;
Type
    Contacts=Array[1..1500] of string[18];
    CALLcase=STRING[10];
Var
    bandr,strlen,band,print,checkcall,askey,flag,code,count,search: integer;
    LenConSrch,dupLeng,countS,linecount,bandi,codes,I,X,printline,page:integer;
    slash,callLength:integer;
    date: string[8];mode: string[5];Modein,Modetype,ModeStored,Modetest:char;
    call: string[9];callsign:string[9];Ba:string[4];
    value:string[1];calldup:string[11];
    callr:string[9];recvd:string[4];beginning:string[3];
    time: string[4];zeros:string[3];pageS:string[18];
    countSt:string[4];countStr:string[3];finalCall:string[18];
    dupTimeH:string[2];dupTimeM:string[2];dupRcvd:string[3];
    timeh:string[2];timem:string[2];calld:string[9];noSent:string[3];
    noRecvd:string[3];countSave:string[18];LinCountS:string[18];
    contact:contacts;
    filename:file of string[18];
    filnam:file of string[18];
Const
    Bell=^G;
    Tab=^I;
    Clock=8419;
PROCEDURE SETCLOK;
(SET UP MACHINE CODE CLOCK PORTS,INITIATE PIO, SET INTERRUPTS)
Begin
     Inline ($E5/$C5/$D5/$F5/
            $3E/$CF/
            $D3/$03/
            $3E/$9D/
            $D3/$03/
            $3E/$46/
            $D3/$03/
            $3E/$B7/
            $D3/$03/
            $3E/$FB/
            $D3/$03/
            $3E/$DF/
            $ED/$47/
            $00/        (REMOVED A F1 POP AF FROM HERE)
            $C5/
            $E5/
            $21/$E3/$20/ (HOURS DIGIT STORED AT 20E3H)
            $06/$06/
            $36/$30/
            $23/
            $10/$FB/
            $E1/
            $C1/
            $DB/$02/
            $FB/
            $ED/$5E/
            $F1/
            $D1/
            $C1/
            $E1/$C9);
END;

PROCEDURE  RUNCLOK;
(Inserts code for interrupt driven machine code clock running off serial port
clock pin - relies on 1 sec pulses at this point)

Begin
     inline ($F5/$C5/$D5/$E5/
            $DB/$02/
            $06/$30/
            $21/$E8/$20/ (LAST SECONDS DIGIT STORED AT 20E8H)
            $34/
            $7E/
            $FE/$3A/
            $38/$2F/
            $70/
            $2B/
            $34/
            $7E/
            $FE/$36/
            $38/$27/
            $70/
            $2B/
            $34/
            $7E/
            $FE/$3A/
            $38/$1F/
            $70/
            $2B/
            $34/
            $7E/
            $FE/$36/
            $38/$17/
            $70/
            $2B/
            $34/
            $7E/
            $FE/$34/
            $38/$0F/
            $2B/
            $7E/
            $FE/$32/
            $28/$09/
            $23/
            $7E/
            $FE/$3A/
            $38/$03/
            $70/
            $2B/
            $34/
            $21/$E3/$20/  (HOURS DIGIT STORED HERE AT 20E3H)
            $11/$53/$F7/
            $01/$02/$00/
            $ED/$B0/
            $3E/$3A/
            $12/
            $13/
            $01/$02/$00/
            $ED/$B0/
            $3E/$3A/
            $12/
            $13/
            $01/$02/$00/
            $ED/$B0/
            $E1/
            $D1/
            $C1/
            $F1/
            $FB/
            $ED/$4D);
END;

PROCEDURE GetClokRun;
          Begin
               Mem[-8378]:= Lo(Addr(RunClok));
               Mem[-8377]:= Hi(Addr(RunClok));
          End;
PROCEDURE Start;
BEGIN
     band:=00;print:=0;count:=1;mode:='SSB';modein:='S';linecount:=1;x:=0;
     page:=1;modetest:='P';
     assign(filename,'RD.DAT');assign(filnam,'RD.BAK');
END;
PROCEDURE Bandchange;
     BEGIN
          ClrScr;gotoxy(30,5);LowVideo;Write(' B A N D  C H A N G E ');
          Normvideo;gotoxy(14,7);
          WriteLn('SELECT : required band from 160,80,40,20,15,10,6or2');
            Repeat
              Gotoxy(39,9);ClrEol;Read(Ba);
            Until (BA='160')or(BA='80')or(BA='40')or(BA='20')or(BA='15')
            or(BA='10')or(BA='6')or(BA='2');
            val(Ba,band,codes);
     END;
FUNCTION StUpCase(St:callcase):callcase;(converts lower case to upper case)
     VAR I:integer;
     BEGIN
          for I:=1 to length(St) do
          St[I]:=UpCase(St[I]);
          StUpCase:=St
     END;
PROCEDURE Save;
     BEGIN
        {$i-}
       Reset (filnam);     {check if RD.BAK exists}
       {$i+}

       If (IOresult=0)then Erase(filnam);
       {$i-}
       reset (filename);  {check if RD.DAT exists}
       {$i+}
       If (IOresult=0) then Begin
                                 Rename (filename,'RD.BAK');
                                 Assign (filename,'RD.DAT');
                            End;
        str(count,countsave);  (Now save the file)
        str(linecount,LinCountS);
        str(page,pageS);
        rewrite(filename);
        write(filename,CountSave,LinCountS,pageS);
        for I:=1 to count-1 do
            Begin
                 write(filename,contact[I]);
            End;
        close(filename);
     END;
PROCEDURE Load;
   Var
     continu:char;
     BEGIN
          Clrscr;gotoxy(28,5);write('L O A D  R O U T I N E');
          gotoxy(10,8);
          Write('Danger .... This will overwrite your current contacts');
          gotoxy(22,9);Write('ensure that you also have a file RD.DAT');
          gotoxy(10,12);write('Shall I continue ? (Y/N) ');read(continu);
          continu:=StUpCase(continu);
          if continu<>'Y' then exit;
          reset (filename);
          read(filename,CountSave,LinCountS,pageS);
          val(countSave,count,codes);
          val(LinCountS,linecount,codes);
          val(pageS,page,codes);
          for I:=1 to count-1 do
              Begin
                   read(filename,contact[I]);
              End;
          close(filename);
     END;
PROCEDURE Timechange;
Var  Continu:char;
     BEGIN
          REPEAT
          ClrScr;gotoxy(30,5);lowvideo;write(' S E T  T I M E ');normvideo;
          gotoxy(25,8);write('Input hours (2 digits)  ');read(timeh);
          gotoxy(25,10);write('Input minutes (2 dig)  ');read(timem);
          UNTIL (length(timeh)=2) and (length(timem)=2);
          mem[clock]:=ord(copy(timeh,1,1));
          mem[clock+1]:=ord(copy(timeh,2,1));
          mem[clock+2]:=ord(copy(timem,1,1));
          mem[clock+3]:=ord(copy(timem,2,1));
          mem[clock+4]:=48;
          mem[clock+5]:=48;
          gotoxy(18,12);write('Do you wish to change the date ? (Y/N) ');
          read(continu);continu:=upcase(continu);
          if continu='Y' then Begin
                                   gotoxy(25,14);Write('Enter new date ');
                                   read(date);
                              End;
     END;
```

. . .continued page 5

. . .continued from page 4

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PROCEDURE ModeChange;
 Label InMode;
          BEGIN
               Clrscr;Gotoxy(25,6);lowvideo;write(' M O D E      C H A N G E ');
               normvideo;
               gotoxy(30,8);write('Present mode is ',mode);
               gotoxy(30,10);lowvideo;write(' A ');normvideo;write(' AM');
               gotoxy(30,11);lowvideo;write(' S ');normvideo;write(' SSB');
               gotoxy(30,12);lowvideo;write(' F ');normvideo;write(' FM');
               gotoxy(30,13);lowvideo;write(' C ');normvideo;write(' CW');
               gotoxy(30,14);lowvideo;write(' R ');normvideo;write(' RTTY');
               gotoxy(30,15);lowvideo;write(' O ');normvideo;write(' OTHER');
      Inmode:  gotoxy(38,17);read(ModeIn);modein:=StUpCase(modein);
                    Case ModeIn of
                    'S':Begin
                             mode:='SSB';
                             modetest:='P';
                        End;
                    'F':Begin
                             mode:='FM';
                             modetest:='P';
                        End;
                    'A':Begin
                             mode:='AM';
                             modetest:='P';
                        End;
                    'C':Begin
                             mode:='CW';
                             modetest:='D';
                        End;
                    'R':Begin
                             mode:='RTTY';
                             modetest:='D';
                        End;
                    'O':Begin
                             mode:='OTHER';
                             modetest:='O';
                         End
                    else Begin
                         gotoxy(30,19);write('Type A,S,F,C,R or O <CR>');
                         gotoxy(38,17);ClrEol;goto Inmode;
                    end; (else)
                    End; (case)
          END;
PROCEDURE GetTime;
          BEGIN
               time:=chr(mem[clock])+chr(mem[clock+1])+chr(mem[clock+2])+
               chr(mem[clock+3]);


          END;
PROCEDURE PrintHeading;
          BEGIN
               If linecount>1then
                  Begin
                     WriteLn(lst);WriteLn(lst);
                     WriteLn(lst,'Contacts this page : 54   ');
                     WriteLn(lst,'Contacts to this point total :',linecount-x);
                     WriteLn(lst);WriteLn(lst);WriteLn(lst);
                     WriteLn(lst);WriteLn(lst);
                  End;
               Write(lst,'RD Log for ',callsign,'                Date : ');
               WriteLn(lst,date,'                    Page : ',page);page:=page+1;
               Write(lst,'Time      Band      Mode      Call Worked    ');
               WriteLn(lst,'No. Sent  No. Rcvd  Points');
               WriteLn(lst);
          END;
PROCEDURE Dismantle;
          VAR  band:string[3];
               Sentst:string[4];
               Mainstring:string[18];
               LengthMain,num:integer;
     BEGIN
               MainString:=contact[linecount];
               LengthMain:=length(Mainstring);
               bandi:=ord(copy(mainstring,1,1));
               calld:=copy(mainstring,2,LengthMain-9);
               num:=linecount;str(num+1000,sentst);
               modein:=copy(mainstring,lengthmain-7,1);
               case modein of
                  'A':mode:='AM';
                  'S':mode:='SSB';
                  'F':mode:='FM';
                  'C':mode:='CW';
                  'R':mode:='RTTY';
                  'O':mode:='OTHER';
               end;{case}
               NoSent:=copy(sentst,2,3);
               NoRecvd:=copy(mainstring,lengthmain-6,3);
               TimeH:=copy(mainstring,lengthmain-3,2);
               TimeM:=copy(mainstring,lengthmain-1,2);
     END;
PROCEDURE Printhold;
  Label JumPrint;
          BEGIN
            printline:=linecount;x:=0;
            While linecount<count DO
             Begin
               Dismantle;
               If bandi=0 then
                             Begin
                               x:=x+1;
                               goto jumprint;
                             End;
               Write(lst,TimeH,':',TimeM,tab,bandi,tab,mode,tab,calld);
               WriteLn(lst,tab,NoSent,tab,NoRecvd,tab,'1');
               If (printline mod 54=0)and(printline>2)then printheading;
               printline:=printline+1;
     Jumprint: linecount:=linecount+1
             End;
          END;

PROCEDURE Printfrom;
      BEGIN
           If print=1 then begin
                             print:=0;
                             printhold;
                         end;
           begin
               clrscr;lowvideo;gotoxy(30,5);write(' P R I N T   F R O M ');
               normvideo;gotoxy(30,7);write('Contact No: ');read(linecount);
               gotoxy(30,9);write('Page no. for next heading: ');read(page);
               printhold;
           end;
      END;

PROCEDURE CallChange;
          VAR contactNo,holdcount:integer;
              HoldModeIn,change,delete:char;
              modehold:string[5];
      BEGIN
         modehold:=mode;holdmodein:=modein;
         clrscr;gotoxy(30,5);lowvideo;write(' ALTER CONTACT DETAILS  ');Normvideo

         gotoxy(6,7);write('Enter the contact number  ');read(contactNo);
         holdcount:=linecount;linecount:=contactNo;
         DISMANTLE;
         linecount:=holdcount;
         gotoxy(40,7);writeLn('The record reads : ',contact[contactNo]);
         gotoxy(30,9);lowvideo;write(' A ');normvideo;
         write('  Call     : ',calld);
         gotoxy(30,10);lowvideo;write(' B ');normvideo;
         write('  Band     : ');If bandi=0 then write('Entry deleted')
                                 Else write(bandi);
         gotoxy(30,11);lowvideo;write(' C ');normvideo;
         write('  No Rcvd  : ',norecvd);
         gotoxy(30,12);lowvideo;write(' D ');normvideo;
         write('  No Sent  : ',nosent);
         gotoxy(30,13);lowvideo;write(' E ');normvideo;
         write('  Time     : ',timeh,':',timem);
         gotoxy(30,14);lowvideo;write(' F ');normvideo;
         write('  Mode     : ',mode);
         gotoxy(30,15);lowvideo;write(' G ');normvideo;
         write('  Delete contact - careful');
         gotoxy(30,16);lowvideo;write(' H ');normvideo;
         write('  EXIT unchanged data');
         gotoxy(38,18);read(change);change:=StUpCase(change);gotoxy(30,20);
         CASE change of
         'A':begin
                  write('Type in new call in CAPS : ');read(calld);
                  calld:=StUpCase(calld);
             end;


         'B':begin
                   write('Type in new band : ');read(bandi);
             end;
         'C':begin
                  write('Type in No. Recvd (3 figures) : ');read(norecvd);
             end;
         'D':begin
                   write('Unable to change contact number');delay(2500);
             end;
         'E':begin
                   write('Type in hours   ( <24 ) : ');read(timeh);
                   gotoxy(30,22);write('Type in minutes ( <60 ) : ');
                   read(timem);
             end;
         'F':begin
                   modechange;
             end;
         'G':begin
                   gotoxy(15,20);
                   write('Are you sure you want to delete the contact? Y/N ');
                   read(delete);if delete='Y'then bandi:=0;

             end;
         'H':begin
                   mode:=modehold;modein:=holdmodein;
                   exit;
             end;
         end;{case}
         finalcall:=chr(bandi)+calld+modein+norecvd+timeh+timem;
         contact[contactno]:=finalcall;
         mode:=modehold;modein:=holdmodein; (restore value of mode)
      END;

  PROCEDURE NoRcvd;
  LABEL InNo;
        BEGIN
             (NUMBER RECEIVED FROM STATION)
             clrscr;gotoxy(30,5);write('Input  Received  Number');
             gotoxy(20,7);write('No to send         Callsign          No Received');
             gotoxy(24,8);write(count);gotoxy(39,8);write(call);
       InNo: flag:=0;gotoxy(61,8);read(recvd);strlen:=length(recvd);
             IF strlen=0 then exit
             Else
             IF strlen>3 then BEGIN
                                 ClrEol;write(bell,'  Bad number');
                                 goto InNo;
                              END
             ELSE for checkcall:=1 to strlen DO
                              BEGIN
                                 value:=copy(recvd,checkcall,1);
                                 askey:=ord(value);
                                 CASE askey OF
                                 0..47,58..128:flag:=1
                                 END;{case}
                                 if flag=1 then BEGIN
                                                  ClrEol;
                                                write(bell,'  Bad number');
                                                goto InNo;
                                            END;
                                 .  -    END;
             CASE strlen OF
             3:zeros:='';
             2:zeros:='0';
             1:zeros:='00';
             END;{case}
             CountS:=count+1000;
             Str(CountS,CountSt);
             CountStr:=copy(CountSt,2,3);{used for printout only}
             GetTime;
             FinalCall:=calldup+zeros+recvd+time;{assemble string to save}
             Contact[count]:=FinalCall;
             count:=count+1; (update contact no.)
        END;
```

. . .continued page 6

. . .continued from page 5

```
PROCEDURE PrintOut;
     VAR
        TimeH:string[2];TimeM:string[2];
        ZeroCount:integer;
        ZCstring:string[5];
     BEGIN
         ZeroCount:=count+999;str(zerocount,ZCstring);
         ZCstring:=copy(ZCstring,2,3);
         TimeH:=copy(time,1,2);TimeM:=copy(time,3,2);
         Write(lst,TimeH,':',TimeM,tab,band,tab,mode,tab,call);
         WriteLn(lst,tab,ZCstring,tab,zeros+recvd,tab,'1');
         If (linecount mod 54 =0)and(linecount<>0)then PrintHeading;
         LineCount:=linecount+1;
     END;



PROCEDURE DupFound;
          Var
             carryon,modeD:char;modedup:string[5];


     BEGIN
          Write(bell);clrscr;gotoxy(25,7);LowVideo;
          WRITE(' D U P L I C A T E   E N T R Y ');NormVideo;
          gotoxy(10,9);
          write('Band');gotoxy(21,9);write('Time');
          gotoxy(33,9);write('Mode');
          gotoxy(40,9);write('No. Sent');gotoxy(52,9);write('No. Rcvd');
          gotoxy(65,9);write('Callsign');
          LenConSrch:=length(contact[search]);
          dupTimeH:=copy(contact[search],LenConSrch-3,2);
          dupTimeM:=copy(contact[search],LenConSrch-1,2);
          modeD:=copy(contact[search],LenConSrch-7,1);
              case modeD of
              'A':modedup:='AM';
              'S':modedup:='SSB';
              'C':modedup:='CW';
              'R':modedup:='RTTY';
              'F':modedup:='FM';
              'O':modedup:='OTHER';
              end;(case)
          dupRcvd:=copy(contact[search],LenConSrch-6,3);
          call:=copy(contact[search],2,LenConSrch-9);
          gotoxy(10,10);write(band);
          gotoxy(21,10);write(dupTimeH,':',dupTimeM);
          gotoxy(33,10);write(modeDup);
          gotoxy(42,10);write(search);
          gotoxy(54,10);write(dupRcvd);
          gotoxy(65,10);write(call);
          gotoxy(27,12);write('Press return to continue');
          read(carryon);
END;

PROCEDURE InitScreen;
BEGIN
    CLRSCR;
    GOTOXY(21,7);LowVideo;WRITELN(' Welcome to the Remembrance Day Contest ');
    NormVideo;
    gotoxy(24,21);WriteLn('Written by J.F.Drew : Version 86T');
    gotoxy(27,11);WriteLn('Enter the date e.g. 20/8/86');
    gotoxy(36,13);read(date);
    gotoxy(27,15);WriteLn('Enter callsign of station');
    gotoxy(36,17);read(callsign);callsign:=StUpCase(callsign);
    {Set tab stops on the printer}
    write(lst,chr(27),chr(68),chr(11),chr(21),chr(31),chr(45));
    write(lst,chr(56),chr(65),chr(0));
    clrscr;gotoxy(21,7);write('Is this the beginning of a contest (Y/N) ? ');
    readln(beginning);
END;


PROCEDURE MainScreen;
BEGIN
    CLRSCR;LowVideo;WriteLn(' Change                                    Disc
                Print    ');
    NormVideo;
    Write('M : mode ');LowVideo;Write(' ',mode,' ');NormVideo;
    gotoxy(36,2);write('SA : save');
    gotoxy(69,2);writeln('PF : from');
    Write('T : time');gotoxy(36,3);write('LO : load');
    if Print=0 then LowVideo;
    gotoxy(69,3);WriteLn('PN : now ');
    if print=0 then NormVideo;
    Write('E : entry');gotoxy(36,4);
    if print<>0 then LowVideo;
    gotoxy(69,4);WriteLn('PH : hold');
    if print<>0 then NormVideo;
    Write('B : band ');lowvideo;write(' ',band,' ');normvideo;
    gotoxy(33,7);write('Next number ',count);
    gotoxy(22,9);write('E N T E R   C A L L / C O M M A N D');
END;

PROCEDURE NewCall;
Var Duplen:integer;
label CALL1;
label TryAgain;

BEGIN
CALL1: FLAG:=0;gotoxy(34,11);ClrEol;read(call);
       call:=StUpCase(call);
       IF CALL='FINISHED' THEN exit;
       IF CALL='SA'THEN BEGIN
                          save;
                          Mainscreen;
                        END;
       IF CALL='LO' THEN BEGIN
                          load;
                          Mainscreen;
                        END;
       IF CALL='PF' THEN BEGIN
                          Printfrom;
                          Mainscreen;
                        END;
       IF CALL='T'  THEN BEGIN
                          timechange;
                          Mainscreen;
                        END;
       IF CALL='PN' THEN BEGIN
                          print:=0;
                          printhold;
                          MainScreen;
                        END;
       IF CALL='PH' THEN BEGIN;
                          print:=1;
                          MainScreen;
                        END;
       IF CALL='E'  THEN BEGIN
                          callchange;
                          Mainscreen;
                        END;
       IF CALL='B' THEN BEGIN
                          Bandchange;
                          MainScreen;
                       END;
       IF CALL='M'THEN BEGIN
                          ModeChange;
                          MainScreen;
                       END;
 {CHECK CALL SIGN FOR LEGITIMACY}
        BEGIN
            STRLEN:=LENGTH(CALL);
            IF (STRLEN<3) OR (STRLEN>9) THEN GOTO CALL1
            ELSE FOR CHECKCALL:=1 TO STRLEN DO
                              BEGIN
                                  value:=copy(call,checkcall,1);
                                  askey:=Ord(value);
                                  CASE askey OF
                                  0..46,
                                  58..64,
                                  91..127:FLAG:=1;
                                  END;(case)
                              END;
        END;
        IF FLAG=1 THEN BEGIN
                          WRITE(BELL);
                          GOTOXY(28,12);WRITE('Bad call : re-enter');
                          GOTO CALL1;
                       END;
        BEGIN (allocation to a string and array)
            value:=copy(call,1,1);
            if (ord(value)>47) and (ord(value)<58) then call:='VK'+call;
            Slash:=Pos('/',call); (strip slash for better dupe test)
                 If Slash=0 then CallDup:=chr(band)+call
                 Else  CallDup:=chr(band)+copy(call,1,slash-1);(remove suffix)
            dupLeng:=length(calldup);
            contact[count]:=calldup;
            search:=0;
 TryAgain:  REPEAT
                 search:=search+1;
            UNTIL copy(contact[search],1,dupLeng)=calldup;
            IF search=count then BEGIN
                                    (now put string together)
                                    NoRcvd;
                                    If (print=0)and(recvd<>'')then Printout;
                                 END
            ELSE Begin
 {Check that the call stripped of slash has really been found}
                      DupLen:=length(contact[search]);CallLength:=DupLen-8;
                      Slash:=Pos('/',contact[search]);
                      If (DupLeng<>CallLength) and (DupLeng<>slash-1) then
                                               goto TryAgain;
 {Has a contact been made for the log category e.g. phone, cw or other}
                      ModeStored:=copy(contact[search],DupLen-7,1);
                       Case ModeStored of
                            'S','F','A': modetype:='P';
                            'C','R'    : modetype:='D';
                            'O'        : modetype:='O';
                       End; (case)
                       If modetype=modetest then DupFound
                       Else goto TryAgain;
                 End;
       END;
END;{NEWCALL}
{This next section is the main program }
BEGIN
     GetClokRun;
     SetClok;
     Start;
     InitScreen;
     TimeChange;
     If (beginning='Y') or (beginning='y') then PrintHeading;
  Repeat
     MainScreen;
     Newcall;
  Until call='FINISHED';
     gotoxy(22,13);Write('Do you want to save the file (Y/N) ? ');
     read(modein);



    modein:=upcase(modein);
    If modein='Y' then save;
    WriteLn(lst);
    If linecount mod 54<>0
     then WriteLn(lst,'Number of points this page : ',(linecount mod 54)-1-X);
    WriteLn(lst,'Total number of points      : ',linecount-1-X);
    WriteLn(lst);
END.
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THE PAST DIRECTION OF AMATEUR RADIO
OR
AN EXPOSE OF THE TRUTH OF THE PAST AGAINST WHICH TO BALANCE THE FUTURE

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It was in the great days of the Beginning and at a time of the prominence of the Apple and in the place called the Garden State. The elders of the Illawarragoanavanapple Tribe, the name having been derived from a favourite saying and activity in those days, which they usually did and they multiplied, were gathered and they watched.

And it came to pass on a day that was dark with great clouds, they observed the great spark transmitter in the heavens. But they knew not what it was. And they wondered at it and were impressed. And all who watched and observed were amateurs . . . for they did not have a professional income in those days. And they marvelled and wondered what could be done with it. But they could not touch it. And the great spark was accompanied by great noise audible even above their chatter so they could not hear one another speak. Even so it was intrusive upon them and they wondered at its power. And they called their times of observation of the phenomenon *Intruder Watch*.

And generations passed as they marvelled at the great spark and wondered what could be done with it, for they could not touch it. But it came to pass, in the observation of the spark and the noise that accompanied it, there was a realisation that the spark was very fast and the noise was delayed and very slow; and they marvelled and saw that the eye was quicker than the ear and that speed conversion was in the heavens so they could both see and hear. And they wondered at it and studied it

And they saw that sometimes the spark went up and sometimes it went down. And they studied it. And it came into evidence that about 50 percent of the spark transmitter discharge was in a downward direction, that being from the great cloud to the earth, and about half went from the earth to the cloud. And so was demonstrated the basic principle of alternating current. And the first scientific observations came into being in the minds of the amateurs. And it was recorded and they passed it to their children.

And it was observed that some of the 50 percent of downward discharges produced fire in certain places and under certain conditions. And they observed that it was good for it produced heat and smoke and they could smell it and touch it. And to cope with the knowledge that was being amassed some if the amateurs came together and formed a Club to study the phenomena. And they wondered what could be done with it. And it was a small club and they all contributed and it was a success. And it was seen to be good. And they that did not contribute were sent into the wilderness where they languished 40 Friday nights. And the club of amateurs studied the phenomenon as a Club project.

And it was about that time a traveller came from the far corners of the earth . . . for the earth was flat in those days. And he brought gifts and he gave them a blanket. And the amateurs thought and studied the the blanket and the great spark transmitter and the fire and the smoke. And they co- operated. Even so their ideas were integrated in a new process called adding up. And they said to one another "Yes, that adds up." And others said; "Oh goannavanapple" and they argued and agreed and disagreed; and they were friends.

And it came to pass one night, at a more social meeting where the amateurs were getting tanked on spring water and apple juice . . . for the brewery was out on strike because the month was December . . . and they were going around in circles in a sort of social oscillation (note origins here of the water cooled tank circuit), one of the amateurs spilled water on the blanket. In the process of trying to dry the blanket by the fire they discovered two things. First the blanket did not burn where it was wet and secondly, they could gather the smoke under the blanket. And so was born the theory of the *Wet Blanket Inert Behaviour Syndrome,* which theory was later to e developed further by the Romans and named "Status Quo." And they found by using the blanket they could control the size of the fire which produced the smoke . . . and by using a wet blanket they could control the emission of the smoke. And the fire was the Base, the blanket was the Collector and he who controlled the blanket was called the Emitter in those days.

And they made special fires called Signal Fires. And it was seen to be good. And the time came when it was seen that there were so many signal fires that nobody could see for smoke and the interference was so bad that it was necessary to allocate certain places and times when signal fires could be lit. And they appointed from among their number he that would be known as the Comptroller of Signal FIres. And he issued an Edict. And so was born the concept and practice of condition control and regulation.

And they made a common code so they could all understand, even when they wafted smoke. And the code was known by all those who were wafters and it was known as the Common Wafters Code. And those who learned the code and became proficient in its practice came together and were admitted to the Amateur Smoke Wafters Society . . . colloquially known as the Interrupted Continuous Wafters or ICW mob . . . and later called Indians by a traveller called Christopher Columbus. And the Comptroller of Signal Fires recognised the Society and they researched. And all was good. And they recalled what had been taught by their fathers about the great spark transmitter and in honour of the traveller who called them this new name, they came together and agreed that the great clouds that were in the transmitter should be called Columbus Clouds . . . and at a much later time a typographical error was made.

And it came to pass that new and varied codes came into being and were used by some, but not by others. And great was the number of the codes. And there was great argument and they could not understand one another, for they talked in different codes. And there were many voices in argument and controversy. And the voices grew as a tower. And the tower grew and its call sign was BA3EL, which has also been subject to misprint in more recent times.

And there came a traveller and he was a wise man for he had three heads . . . to accommodate the three hats he was wearing. And the traveller came out of a country called Victoria where there were more hats than heads and he was contributing to the balance of supply and demand. And the traveller addressed the elders of the Society and they spoke of the State-of-the-Art and the Ultimate Smoke Transmitter and of the Regulations and the conditions for the proper gating of the smoke.

And the wise man with three heads spoke of a new blanket called "envelope" and he showed them how to use it to vary the strength of the wind under the blanket which contained the smoke. And it was able to make big wafts or little wafts. So they gave it a name and called it Amplitude Draught.

And he came unto them again and said they should use the valleys and the gullies and the troughs and the peaks that were around them. But they understood him not. And he told them to goannavanapple, which they did because their fathers had told them about it. And they multiplied. But it came to pass that he forgave them that did not understand. And he took them and showed the how to use the smoke in the valleys and the high peaks and the gullies. And how to use the V-shape and the U-shape . . . and the inverted V . . . to control the entry of the wind under the blanket with the smoke. And they saw it and they did it and they observed and saw the smoke and how it could be made wide or narrow. And they called it Double Side Draught and Single Side Draught.

And the Society grew and with it the knowledge was spread. And some left the Society for they were avaricious and they went and they made money by broadcasting. But those that were left came together and they formed many clubs. And the clubs were spread across the nation. And the clubs came together and had counsel, one with another, and formed rules of conduct with the Comptroller of Signals. And they were happy.

And there came a prophet with a vision who was called Fourier. And the vision was a strange new code. And it was taken and used by the Amateur Smoke Transmitters Society to develop Harmonic Smoke. And it was good. And the Comptroller of Signal Fires arranged the allocation of the frequency of fires based on the new code which was named Harmonic Relationship. And for many years all was well, as it was a well kept secret from those in the community who might conclude that, where there is smoke there is fire.

But it came to pass that a group called the Digitalogists assembled all of the bits of smoke that escaped and they learned the secret. And they called it *Squarewave.* The Digitalogists studied the nature of this new smoke and found they could always produce harmonic smoke if they could make it come and go very quickly. And the Digitalogists boasted their superiority in that they could divide any number into any portion . . . and the Council of the Clubs knew of the saying "Divide and Conquer" and they were concerned. And they became alarmed at the possible dangers that would assail the traditional smoke signallers and the difficulties that would arise.

In the course of time many other Societies had grown in many distant lands and they had come together and formed a Smoke Signallers Union. And all of the Comptrollers of the different lands spoke together and with the Union. But the Council of the Clubs in the land of the Illawarragoanavanapple was weakened by a strange disease called letho-apathy. And it came to pass that the Council was infiltrated by the Digitalogists on the pretext of having the potential to provide more members interested in Amateur Smoke Transmitting. And the Comptroller sought the advice of the Great Council in that land, and it formed a Committee to study the matter which would affect the future of the Smoke Transmitters. But that is another story . . . as it lies in the future.

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BUILDING BLOCKS REVISITED
— Part 3

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This, the third part of the series, covers the IF amplifiers and generation of the various control voltages.

MODULE 3 — THE IF AMPLIFIER

Figure 12 is the circuit of the module, while Figure 13 shows the placement of parts on the 6 inch x 1.5 inch (150 mm x 38 mm) PCB.

In addition to two stages of 8 MHz amplification (only one of which may be required, see later text) the module includes circuitry for setting the gain of the stage/s when used as a transmit amplifier. A miniature relay is used to select the appropriate control voltage source.

It should be noted at this point that, if the board is used in conjunction with the (yet to be described) filter unit, only the second of the two amplifier stages is necessary. In this case, the input is to the point marked 'X' in Figure 12 and all components to the left of the dotted line in Figure 13 are omitted. If the unit is to be used for some other purpose, then the facility to provide additional gain is available.

The 8 MHz amplifier/s use BF981 dual gate FETs. They were chosen for their very low noise capabilities and their ready availability, is an added bonus.

The sources of the FETs are held at a fixed positive voltage by means of 3.3 volt zener diodes and their gate returns are also made to this fixed voltage point.

Control voltage is applied to gate two and is negative going. Under 'no signal' conditions the control line is set at seven volts (see description of the AGC generator later in this article) for reception and four to five volts for transmitting. The four to five volts 'no signal' level is set by means of RV1 on this module.

Any incoming signal (TX or RX) will cause the voltage on gate two to fall, so reducing the gain of the stage/s. At some point the incoming signal will cause the the control voltage to be less than the fixed 3.3 volts on gate one and the stage will be cut off. When in the receive mode, the AGC action begins at very low signal levels, as low as possible in fact, but when transmitting, the ALC action is delayed by the zener associated with the inverting input of the LF356 operational-amplifier. The level at which the ALC starts acting is set by RV2.

The tuned circuits of both stages are damped down by the resistors across them and are therefore fairly broad in their tuning. They are included only to provide some degree of filtering of the out of band noise generated by any amplifier. The alternate method of limiting this out of band noise is a second crystal filter at the amplifier output. There is no doubt that this second filter is the ideal way to go, but it can be expensive. However, after the section on crystal filters has been covered, some readers may be tempted to add a post-amplifier unit.

Output is taken from the junction of the 150 pF and 1n5 capacitors. The impedance at this point approximates to the 50 ohms required by the product detector and the (yet to be described, but see Figure 1 in Part 1) transmit mixer.

CONSTRUCTION AND TESTING

Only a couple of points need highlighting, otherwise building the module is simply a matter of putting the components in the right place and observing any component orientation.

The leads of the BF981/s need bending at right angles to fit the holes in the PCB. The longer drain lead is bent 4 mm out of the case, whilst the other three leads are bent 1.5 mm out from the case.

On one side of the device case is the identification marking (which includes the device number BF981). The leads are bent, so that when the device is put into the board, this identification is face down to the PCB, whilst the blank side of the case faces upwards.

Coil L4 (and L3 if used) is wound off the board. The coil former is cemented onto the base-plate with Superglue® or another similar good glue.

Scrape and tin half-an-inch (13 mm) or so of one end of the wire specified. Put this tinned end in the (hollow) base-plate 'leg' indicated by the letter 'B' on the parts placement diagram Figure 13. Starting at the base-plate end, close wind on the specified number of turns and lock them in place with a small quarter-inch x eighth-inch (6 mm x 3 mm) piece of clear adhesive tape. Cut off any excess wire, leaving just enough to go through the 'leg' marked 'T' on Figure 13. Scrape and tin this end, push it through the 'leg' and solder in place. Put the coil assembly into the board, filing off any excess solder left on the legs. *Check* that the bottom and top of the windings are in the correct places. Thread the tuning slug about halfway into the former. Slip the screening can over the assembly and rock it a little to make sure the top of the coil form is sitting in the raised lip around the hole in the top of the can. The bottom edge of the can should now be resting on the surface of the PCB.

Solder the can earthing spills to the board, checking that the assembly is still as it should be and finally solder the six coil legs in place.

To test the board and make an initial setting of the ALC operational- amplifier inverter, proceed as follows.

- Temporarily solder two equal sized resistors to the board. One between the AGC pin and earth, the other between the AGC pin and the +12 volts pin. The values of these temporary resistors is unimportant, only that they be equal. Two 15k, two 22k or two 10k will suffice as the idea is to put six volts on the AGC line.
- Temporarily solder a 51 ohm resistor across the two output pins and monitor this load resistor with the probe and meter described in Part 2.
- Apply power and inject some 8.000 MHz signal into the input pins. This can come from a signal generator or can be 'pinched' from the BFO described in Part 2.
- Adjust the signal input level until the probe meter just starts to indicate.
- Then adjust the tuning slug for a peak reading on the meter. The IF strip is now more or less lined up, although final 'tweaking' will have to wait until the receiver is complete.

To set the initial ALC voltage, first temporarily earth the ALC (not AGC) input pin and then adjust RV1 until the reading at pin six of the operational-amplifier is 4.00 volts. This sets the initial gain of the device/s in the transmit mode. RV2 cannot be set until the transmitter is finished.

MODULE 5 — THE CONTROL BOARD

This module contains the receiving AGC generator, the S/output- meter with its associated switching, and a 800 Hz audio oscillator to provide a CW transmit signal and sidetone.

Figure 9 is the circuit diagram of the AGC generator and meter switching arrangements. Figure 10 is the circuit of the audio oscillator and Figure 11 gives the parts placement on the six inch x 1.5 inch (150 mm x 38 mm) PCB.

The AGC is audio derived and the input to the generator is taken from the top of the audio volume control, see Figure 2 Part 2.

Consider first the situation that exists under 'no signal' conditions.

There is no rectified signal applied to the gates of either the MPF102A or the MPF102B. The residual DC voltage across the 10k resistor in the source of MPF102A is 'nulled out' by adjusting RV3 until the voltage at the operational-amplifier output (the AGC voltage) is 7.0 volts. MPF102B is conducting and thus the 100k resistor, in its drain circuit, is providing a low resistance path to earth, for the gate of MPF102A.

As soon as a signal arrives at the input, it is amplified by the BC548/BC558 bipolar pair. This amplified audio then splits two ways. The 'lower' path is further amplified in a BC548 and rectified by the 1N914 so as to apply a negative voltage to the gate of MPF102B, thereby pinching it off. This pinch-off, effectively leaves the gate of MPF102A with a very high (20 megohms) resistance path to earth.

Simultaneously, the audio in the 'upper' path is rectified by the germanium diode and the generated DC charges up the 1.0 μF capacitor. This DC is amplified by MPF102A and the voltage across its source resistor goes more positive.

This positive going voltage is inverted by the LF356 operational-amplifier causing its output (and the AGC line) to drop from the preset value of 7.0 volts, thereby reducing the gain of the controlled stages.

Consider now what happens when the input audio signal disappears (end of over, pause in speech, etc).

The charge on the 1.0 μF capacitor can only leak away slowly through the 20 megohm resistor and it would be many seconds before the full gain of the controlled stages was restored.

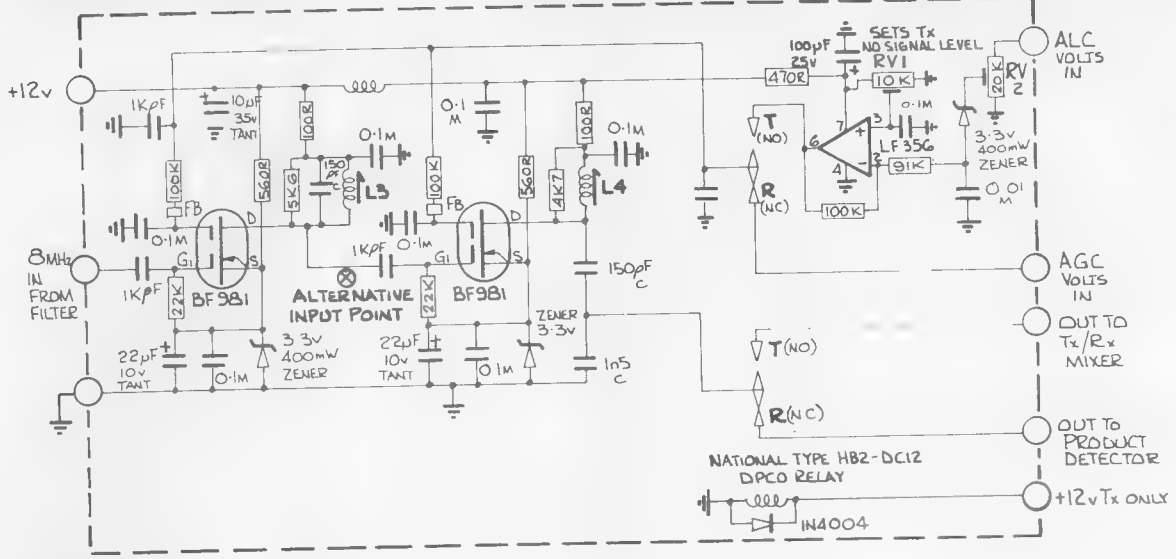


Figure 12: Module 3 — IF Stages

Notes:

1. All resistors ¼ watt 5 percent
2. M = Monolithic Ceramic Capacitor
   C = Ceramic Disc or Plate Capacitor
3. L3 = 25 turns, L4 = 27 turns No 32 (0.25 mm) enamelled wire close wound on Neosid Type A (5 mm dia) Former with Base-Plate. F29 tuning slug
4. RV1, RV2 25 turn Spectrol Trimpots Type 64Y

Module Three — IF Amplifier.

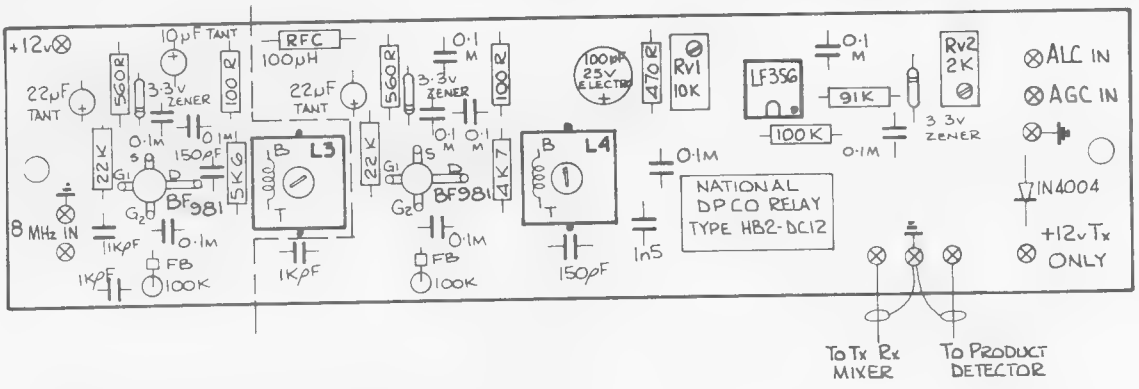


Figure 13: Module 3 — Component Layout.

Notes:

1. All components to left of dotted line omitted if used in conjunction with filter stage — see text.
2. Legs of BF981 bent down so that writing on device will be against the PCB.

⊘ = PCB Pin
B = Bottom of Winding; is nearest circuit.
T = Top of Winding.

Happily however, things are happening a bit faster at the gate of MPF102B. The negative charge on the 0.1 μF capacitor in its gate circuit is much more rapidly discharged through the 4.7 megohm resistor in parallel with it and, as a consequence, the MPF102B conducts and rapidly discharges the 1.0 μF capacitor, thus restoring the AGC line to its full gain value.

The attack time of the system is set mainly by the time taken to charge the 1.0 μF capacitor in the 'upper' path and is effectively fixed. The discharge time is set by the combination of the parallelled 0.1 μF capacitor and the 4.7 megohm resistor in the 'lower' path. The constants given are about optimum for SSB, but a bit slow for CW. Accordingly, provision is made to put a 1.0 megohm in parallel with the 4.7 megohm resistor to decrease the discharge time.

RV2 controls the level at which the AGC action starts. Under normal conditions it is set with the slider at the top of its travel and AGC action starts as soon as the germanium diode starts to conduct. If there is no need to control the AGC start level, then RV2 can be replaced with a 1k fixed resistor.

RV1 controls the level at which the MPF102B starts to pinch off. It is normally set about two-thirds of its full travel.

If 12 volts is applied to the inverting input of the operational-amplifier, the AGC line drops to near zero and mutes the IF stages. This facility is not normally used, but provision is made for occasions where it could be useful.

The S-meter circuit is a simple one and provides a fairly linear indication of incoming signal strength. It is not designed as a refined measuring instrument. In this respect it is no different from the S-meters of most commercial amateur equipment, all of which not only tell 'fibs', but tell them in different languages! How to make a truly linear and accurate S-meter may form the subject of a separate article, sometime in the future.

With the AGC line adjusted to its specified value of 7.0 volts, RV5 is adjusted to give a zero meter reading. Then with what is considered to be a S9 signal (50 microvolts into the input of the finished receiver or what is adjudged to be an S9 signal by ear) RV4 is adjusted to give a suitable reading, say half scale.

In the transmit mode, RV6 is adjusted to give a suitable scale deflection for the output power in use.

Note that all the trimpots on this and other PCBs are 25 turn, vertical mounting, top adjust types. They may be a little more expensive than the normal 'single turn' variety, but all adjustments are smooth and easily made. Once set, the adjustments are less likely to drift away from the required settings.

The 800 Hz audio oscillator of Figure 10 serves a dual purpose if the builder wishes to provide for CW transmission. It gives a signal which is offset 800 Hz from the carrier and is also a sidetone source which can be fed to the receive audio stage for monitoring purposes. If CW transmission is not an operating requirement, the oscillator may be omitted.

In providing for CW it would have been electrically possible to unbalance the balanced modulator of Figure 6 Part 2. This was initially tried but the mechanical arrangements were a bit difficult and the carrier suppression obtained was not good. Furthermore, it was not easily possible to provide the conventional 800 Hz offset for CW.

Since an 800 Hz tone introduced into the microphone circuit will produce in the transmitter output a single frequency 800 Hz removed from the carrier frequency, this method of producing CW was adopted. The method brought the above noted advantage that some of this audio could be fed into the receive audio system to give a monitoring sidetone. Furthermore by varying the amount of 800 Hz fed into the microphone circuit, the power output level of the final amplifiers in the transmitter could be varied, ie we have a 'Drive' control.

Reverting to Figure 10, RV7, an on board trimpot, sets the sidetone level. RV8 is a panel mounted standard potentiometer controlling the amount of audio fed to the microphone stage and thus the output level. The resistors in series with RV7 and RV8 are nominally 100k, but may need altering to suit the individual constructor.

CONSTRUCTION AND TESTING

Putting the components on the board calls for little comment. It is necessary only to put them in the right place and observe any orientation required.

It will be beneficial if all the trimpots (RV1 to RV9) are preset to half- travel before soldering them in. Use an ohm-meter to set them so that approximately the same resistance can be measured between the slider and each end. This is more accurate than trying to count turns.

At this stage do not connect the meter and leave off the 'Fast/Slow' switch. If the board is to be used only for reception, leave off the relay and the 1N4004.

With the input temporarily shorted to earth, apply 12 volts and then adjust RV3 until there is 7.0 volts between the AGC output pin and earth. Also adjust RV5 so that 7.0 volts appears between the 'Meter +' pin and earth.

The audio oscillator may now be commissioned. Put a temporary short across the 'Key' pins. Connect the 'Sidetone out' pins to the audio board (slider of audio level potentiometer on Module 4). Apply 12 volts to the oscillator. An 800 Hz tone should now be heard from the speaker. Now adjust RV7 to give a comfortable level from the speaker. If necessary, change the value of the 100k resistor in series with RV7 to attain the required level with the trimpot at about half travel.

Disable the oscillator, remove the connections to Module 4, remove the temporary short to the input of the AGC system and connect the output of the audio oscillator to the input of the AGC generator. Put a voltmeter between the AGC output pin and earth. Apply 12 volts to the board but **NOT** the audio oscillator. The meter should register the previously set 7.0 volts. Now apply 12 volts to the oscillator. The meter reading should drop to some lower reading, indicating that the AGC system is working. Final adjustment of the system will not be possible until the whole receiver is working. As a last check, temporarily apply 12 volts to the 'Mute' pin. The AGC output voltage should drop to near zero.

Part 4, next month, will describe Module 2, the IF crystal filter and Module 9, the VFO.

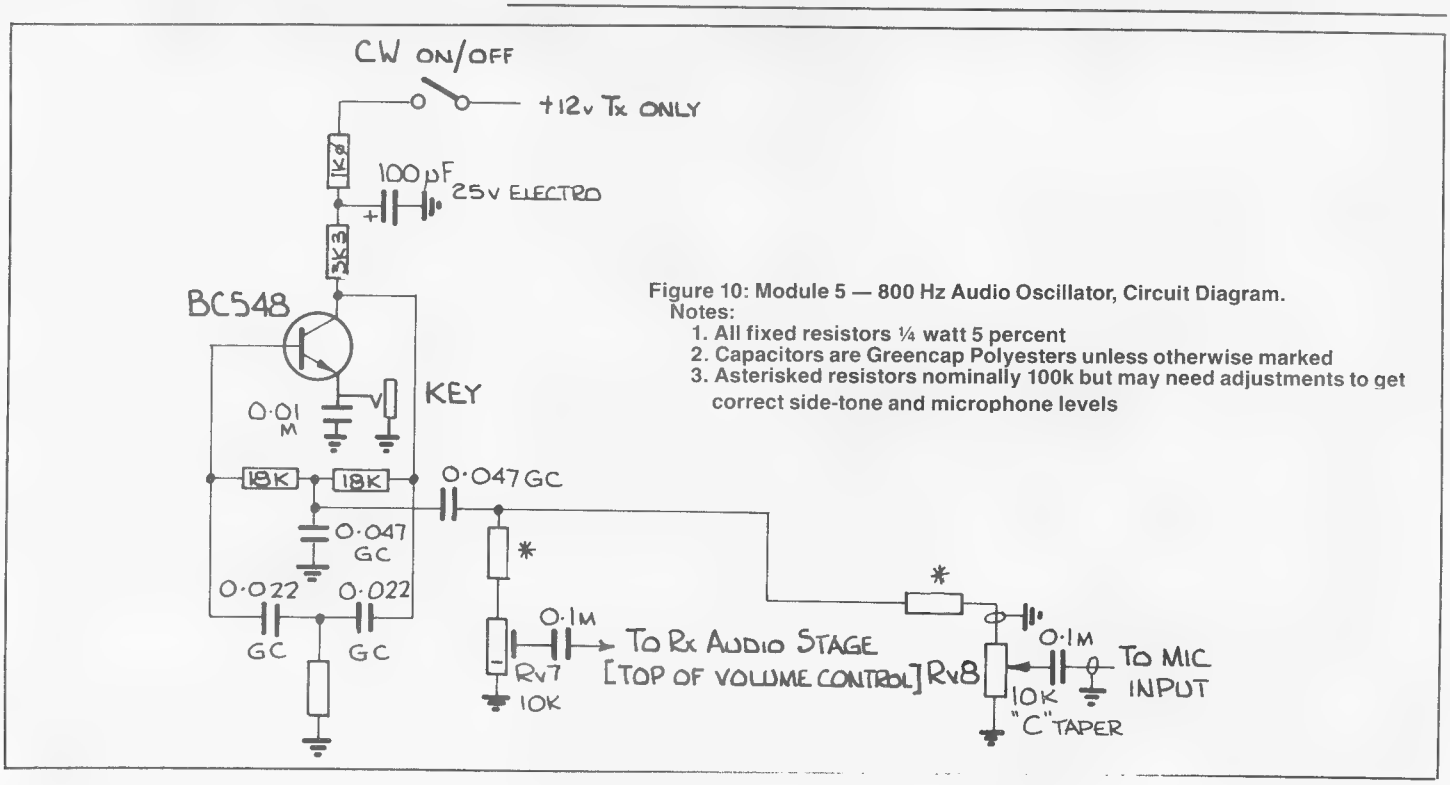


Figure 10: Module 5 — 800 Hz Audio Oscillator, Circuit Diagram.
Notes:
1. **All fixed resistors ¼ watt 5 percent**
2. **Capacitors are Greencap Polyesters unless otherwise marked**
3. **Asterisked resistors nominally 100k but may need adjustments to get correct side-tone and microphone levels**

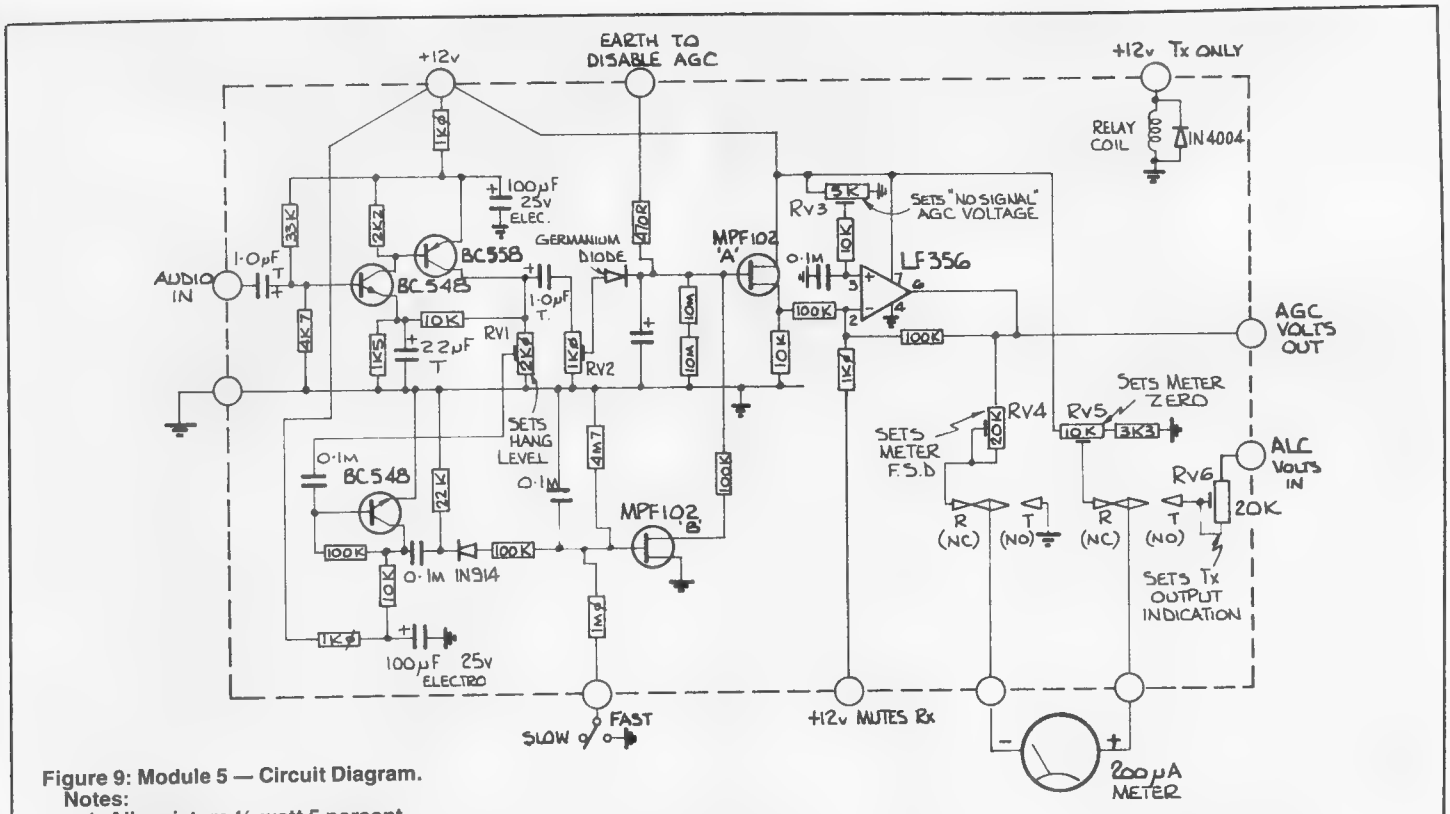
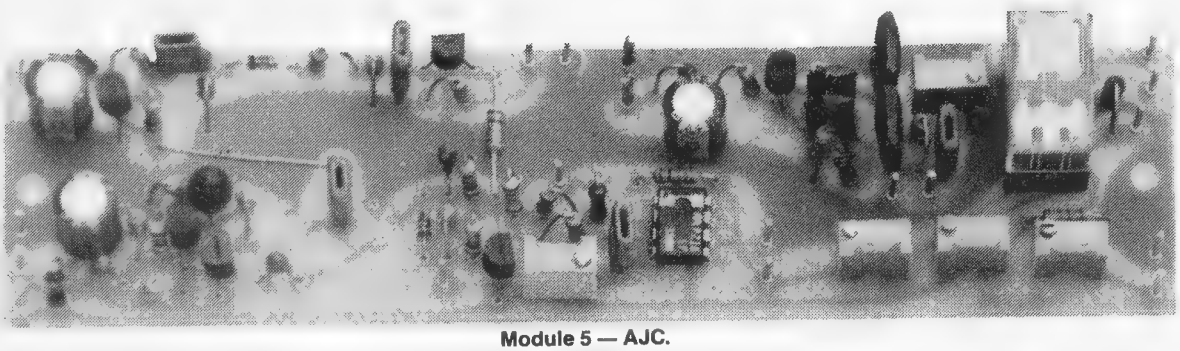


Figure 9: Module 5 — Circuit Diagram.
Notes:
1. **All resistors ¼ watt 5 percent**
2. **All trimpots 25 turn — top adjust triangular pin out, Spectrol Type 64Y**



Module 5 — AJC.

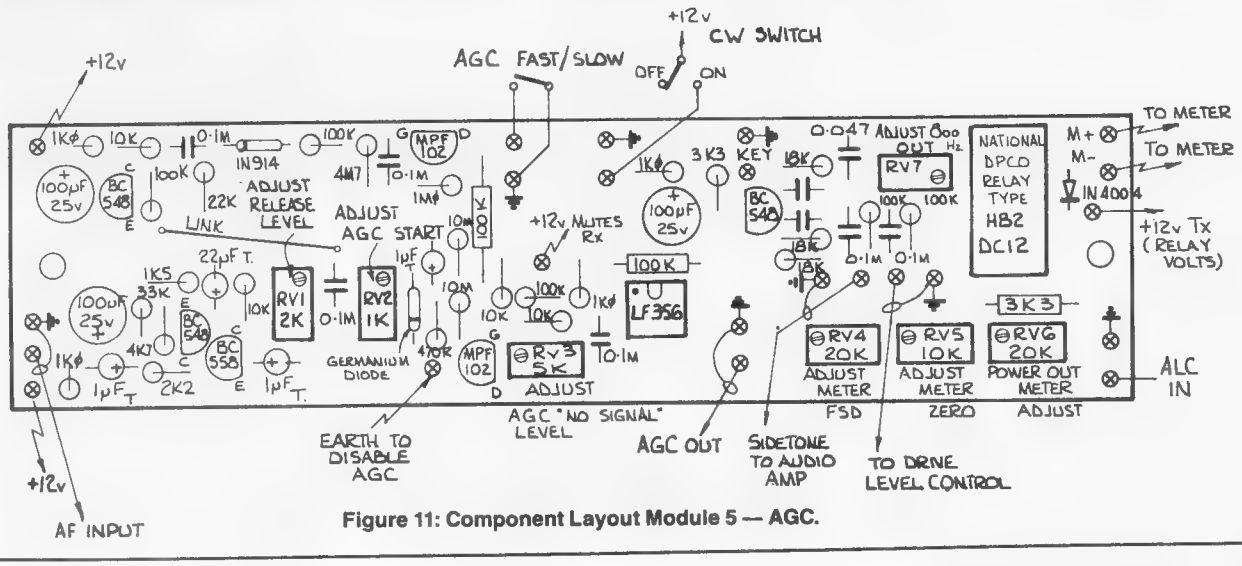


Figure 11: Component Layout Module 5 — AGC.

RD LOG FOR COMMODORE 64, DISC DRIVE & PRINTER

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A timely log-keeping computer program for the RD Contest in response to comment by VK6YA in the Contest Column, February AR.

The program was written prior to the 1986 RD Contest when the writer was looking for a computer log program which would satisfy the requirements of making the contest enjoyable by doing all the duplicate call checking and also print out a log in the format as required by the contest manager.

Never having been an avid contest contender, the RD Contest somehow does have limited appeal. I have even neglected entering that in recent years as I lost the desire after entering a couple of them but found the log-keeping rather tedious — or to be more precise, the checking for duplicate calls became a grind after the first few hours. That was about seven or eight years ago and I have not bothered entering since then. In the last five or six years I have become interested in computers and there has always been an idea percolating in the gray matter that perhaps I could write a program which would "do everything" for me in the RD Contest and if I could write that program I would give the contest a try again!

So, what exactly did I want the computer to do? I wanted it such that all I had to do was enter a call sign and the computer would do all the required checking to ensure that the contact was valid under the rules and, if so, all that was required by me was to enter the QSO number. The computer would then send all the information off to the printer and a running log would be kept throughout the contest that just had to be placed in an envelope and sent off to the contest manager. This of course included the computer generated front sheet recording all the details regarding pages and scores, etc.

If reference is made to the sample log, it can be seen that everything required is included and all that is required of the operator is to enter the call sign, the received QSO number and place his signature on the front sheet. What could be easier! ! !

To write such a program that could only be used once a year would appear to almost touch on the absurd, to which I have no answer except I have done it simply as a personal project to give me a reason to sit at the computer other than to play games or have the occasional RTTY contact. I was a little worried about possible rule changes that would render the program obsolete after one year, but I see in a recent Contest Column that there is a push toward standardising the rules and leaving them the same as this year's contest. Another small problem is that the log has been limited to 500 contacts per category, but following recent RD Contest results, not too many have exceeded that amount.

For those competent in BASIC programming, it is obvious there are techniques used in this program that could only have come from a self-taught programmer. So, content yourself with the fact that, if you feel you could have written better you would most certainly be correct. In some parts, the program is probably a little involved and could be classed as "going over the top" but it has slowly evolved over a few months and, as I think of another feature which I think may be fun to add, I have done so.

One very important fact to point out at this time is that I do not run the program in BASIC "as is" but run it through a compiler, such as *Petspeed* to speed the whole thing up. It has been found, with the log filled to almost its capacity of 500 calls, it only takes about 12 seconds to verify a call. Compare that to checking through a handwritten log and it seems insignificant.

LET'S LOOK AT THE PROGRAM

LINES 10-150 set the screen colour, display a title page and set arrays.
LINES 170-330 give the option of starting a new log from scratch or, if you have been working in the contest for a few hours and take a break, you can then load the unfinished log and continue in the contest without losing the previous entries.
LINES 380-460 sets or zeros variables as required.
LINES 510-610 are for entering the operators own call sign. There is some checks done on the call sign to try and ensure that it is entered correctly as far as the right alpha/numeric content is concerned. There is no facility to allow for "out of state" call signs, eg VK5AIB/6.
LINES 660-680 allow setting of the page length of the log. This is usually set by the distance between perforations in the paper and should not allow for gaps at the top or bottom of the page as this is taken care of in the program. There are 17 lines used in headers and spacing so if a number less than 17 is entered it defaults to 17. If no number is entered it defaults to 66 lines per page.
LINES 730-800 allow the contest category to be selected as per the contest rules. VHF and HF logs are not allowed to be mixed under the current contest rules so, once selected, the category cannot be changed.
LINES 850-940. If VHF has been selected the time between contacts is entered as this is the only restriction on VHF.
LINES 990-1060 allow the contest section to be selected. Phone and CW/RTTY logs cannot be mixed under the current contest rules so once selected, the section cannot be changed. However, within the Phone Section it is possible to select SSB, FM, AM or TV.
LINES 1110-1220 allow entering of the date and then displays it back to you to ensure you are happy with what you have entered.
LINES 1270-1370 allow the input of UTC and checks for valid numbers and then displays it back.
LINES 1390-1470 looks at the time and the operators call sign to determine if it is the first or second day of the contest in local time. This information is used for the date entry on the log sheet.
LINES 1530-1550 converts the contact number to a number with leading zeros as this seems to be the accepted method for log numbering. The numbers are used in the range 001 to 500.
LINES 1560-1680 set the screen display that is used for each contact and displays the current contact number and the options available for changing mode within a section, changing frequency or saving or ending the log.
LINES 1700-1800 allow entering the contact call sign. Checks are carried out to ensure the call sign has the correct alpha/numeric content and that it is a VK, P2 or ZL call sign as these are the only areas worked in the contest.
LINES 1820-2050 allows a new frequency and/or mode to be entered is desired but the frequencies and modes selected are limited to those allowed within the limitations of the category and section originally selected.
LINES 2100-2270 check for duplicate entries. These checks are per the contest rules and can be easily seen in the program for HF. For VHF the call area check is deleted but a time check is included and this is the purpose of the contact time and current time being converted to minutes to allow for easy comparison. If the current time has just passed 0000 hours and the previous contact time was prior to 0000 hours, 24 hours (1440 minutes) is added to the current time simply for the ease of time comparison. Where both times are on the same side of 0000 hours, this does not apply.
LINES 2320-2380 allows you to either accept the contact or reject it. At this point, the contact is a legal contact but you may still not want to enter it in the log for a variety of reasons, eg sudden QRM or QRN causes contact to be lost so numbers cannot be exchanged or the other station cannot hear you as well as you hear them, etc. In this case you simply reject it and the program reverts to entering another call.
LINES 2430-2510. If the contact is accepted you will then be asked to enter the contact number the other station gives and this must be in the range 000-999. Anything outside this range will not be accepted. The string variable is cleared prior to getting the next number so that, should an operator inadvertently hit the RETURN key instead of entering a number, it will be detected as an invalid number. If this is not done it will print the number from the previous contact. The total score is then incremented by one.
LINES 2560-2770 prints the page header if it is a new page. A check is made to determine if the date has changed since the last page.
LINES 2790-2910 sends data to the printer for each contact made. Line 2880 has to be included prior to closing a print file when the printer is in the CMD mode (line 2580). This results in an unwanted line-feed so lines 2870 and 2900 are included to temporarily disable the auto line-feed facility.
LINE 2950 will detect if the log has reached its maximum capacity and will automatically end the log and print out a front page.
LINES 3000-3180 prints a page footing if at the end of a page. If the log is "end"ed and only a part page is used it will form-feed the balance of the page and add the page footing on the correct line.
LINES 3260-3310 force a "garbage collection" every 20th contact to free-up memory of all the unused strings. Without this feature the computer will do it at some stage by itself but during that process the computer seems to go to sleep for a while until the process is complete. By doing it every 20th contact it takes less time, hence causing less inconvenience during the contest.
LINES 3360-3820 prints out a front page for the

log and allows you to enter your name and address. All relevant information is included on the front sheet and it only needs to be removed from the printer and the declaration signed.
LINES 3870-3940 is a subroutine for flashing error messages when an incorrect entry is made.
LINES 3990-4380 is the log saving routine so that if you wish to have a break from the contest you can save all the log and details including category and section, etc, to disc. This routine is accessed by entering "END" in place of a call sign and the option is then given of ending the log so that all entries are lost and a front page is printed or the option of saving the log to disc is offered so the log can be recommenced at a later time. It also includes a disc error trap so that, if you have a faulty save or forget to remove your write protect tab, etc, you will not lose your log. The routine will provide its own name for the log saved.
LINES 4430-4810 is the log loading routine used when re-commencing an unfinished log. When re-commencing a log it will continue on as though the log had never been stopped as far as line spacing on the printer is concerned so that the printer should be set to continue immediately under the previous contact.

As mentioned earlier, I run the program after compiling it with *Petspeed* to speed it up. Before running it through *Petspeed* it is necessary to do a few minor modifications to the routine to allow for the effect that the increased speed has on a few timing loops and also to remove a few lines of code which are not needed in the compiled format.

(1) Change line 90 to,
90 FOR A=1TO3000:NEXTA:REM DISPLAY DELAY

(2) Change lines 3900 and 3920 to,
3900 FOR DL=1TO2000:NEXT DL
3920 FOR DL=1TO2000:NEXT DL

(3) Change to GOTO values in the following lines to the new GOTO values as shown,
2950—GOTO3040
3020—GOTO3310
3060—GOTO3130
4120—GOTO3040

(4) The following lines are to be deleted, 150, 2560, 2870, 2900, 2910, 3030, 3120, 3150, 3160, 3230, to 3300.

Remember these modifications should not be done if the program is going to be run "as is" in BASIC.

ar

REMEMBRANCE DAY CONTEST 1987

```
CATEGORY:-----HF
SECTION:------TRANSMITTING PHONE
CALLSIGN:-----VK5AIB
NAME:---------IAN BARTON
ADDRESS:------30 HALIFAX AVE., PARAFIELD GARDENS, 5107.
TOTAL SCORE:-- 56

PAGE TALLY:            2  SHEETS                    56  POINTS

                     PAGE                        SCORE
                       1                           50
                       2                            6
                PAGES  2                   TOTAL   56
```

DECLARATION

I HEREBY CERTIFY THAT I HAVE OPERATED IN ACCORDANCE WITH THE RULES AND SPIRIT OF THE CONTEST.

SIGNED

10/02/1987

REMEMBRANCE DAY CONTEST 1987

CALLSIGN: VK5AIB
CATEGORY: HF
SECTION: TRANSMITTING PHONE
DATE: 10/02/1987

TIME(UTC)	BAND(MHZ)	MODE	CALL	NO.SENT	NO.RECVD	SCORE	TOTAL
1611	3.5	SSB	VK1YT	051	047	1	51
1611	3.5	SSB	VK2UJ	052	278	1	52
1611	3.5	SSB	VK9RW	053	278	1	53
1612	3.5	SSB	VK3WU	054	378	1	54
1612	3.5	SSB	VK1WQ	055	078	1	55
1612	3.5	SSB	VK7GH	056	028	1	56

PAGE NO. 2 PAGE SCORE= 6 CONTEST SCORE= 56

```
10 POKE53280,5:POKE53281,5:REM SCREEN AND BORDER COLOR
20 PRINT"{CLR}{BLK}":REM TEXT COLOR
30 PRINTTAB(13)"{DOWN}{DOWN}{DOWN}{DOWN}RD' CONTEST LOG"
40 PRINTTAB(19)"{DOWN}BY"
50 PRINTTAB(15)"{DOWN}IAN BARTON"
60 PRINTTAB(17)"{DOWN}VK5AIB"
70 PRINTTAB(10)"{DOWN}{DOWN}{DOWN}FOR USE WITH PRINTER"
80 PRINTTAB(13)"{DOWN}AND DISC DRIVE"
90 FORA=1TO500:NEXTA:REM DISPLAY DELAY
100 DIM C$(500):REM CALLSIGN ARRAY
110 DIM F$(500):REM FREQUENCY ARRAY
120 DIM T$(500):REM TIME WORKED ARRAY
130 DIM M$(500):REM MODE WORKED ARRAY
140 DIM P(20,2):REM PAGE NO. AND PAGE TOTAL DETAILS FOR FRONT SHEET
150 FM=0:REM STRING DELETE COUNT
160 REM----------  ----------------------------------------------------------
170 PRINT"{CLR}"
180 PRINT"{DOWN}{DOWN}{DOWN}*********ENSURE THAT PRINTER IS*********"
190 PRINT"***********ON AND READY TO GO***********"
200 PRINTTAB(8)"{DOWN}{DOWN}{DOWN}{DOWN}{DOWN}YOU CAN START A {RVON}N{RVOF}EW LO
G"
210 PRINTTAB(19)"OR"
220 PRINTTAB(3)"CONTINUE A {RVON}P{RVOF}REVIOUS LOG FROM DISK"
230 PRINTTAB(9)"{DOWN}{DOWN}{RVON}N{RVOF}EW LOG"
240 PRINTTAB(9)"{RVON}P{RVOF}REVIOUS LOG FROM DISK"
250 PRINTTAB(3)"{DOWN}ENTER N OR P"
260 GET A$:IF A$="N"THEN PRINT"{CLR}":GOTO380
270 IF A$<>"P"THEN GOTO260
280 PRINTTAB(5)"{DOWN}{DOWN}INSERT DISK WITH PREVIOUS LOG."
290 PRINTTAB(7)"{DOWN}{DOWN}PUSH SPACE BAR WHEN READY"
300 GETA$:IF A$=" "THEN GOTO320
310 GOTO300
320 PRINT"{CLR}":PRINTTAB(15)"{DOWN}{DOWN}{DOWN}{DOWN}LOADING LOG"
330 PRINTTAB(13)"BE VERY PATIENT":GOTO4430
340 REM------------------ --------- ----------------------------------------
350 REM **********************
360 REM **PRESET VARIABLES**
370 REM **********************
380 FR$="144":REM ARBITARY START FREQUENCY
390 PS=66:REM NO. OF LINES PER PAGE ON PRINTER
400 PN=1:REM PAGE NUMBER COUNT
410 N=1:REM LOG START NUMBER
420 LC=1:REM PRINTER LINE COUNT
430 X=2:REM DEFAULT VALUE-MINIMUM TIME BETWEEN VHF CONTACTS
440 C=0:REM ARRAY POINTER
450 PT=0:REM PAGE TOTAL COUNT
460 TS=0:REM RUNNING TOTAL COUNT
470 REM-----------------------------------------------------------------------
480 REM *********************************
490 REM **ENTER AND CHECK OWN CALLSIGN**
500 REM *********************************
510 PRINT"{CLR}"
520 INPUT"{DOWN}{DOWN}{DOWN}ENTER YOUR CALLSIGN";MC$
530 IF LEN(MC$)<5 OR LEN(MC$)>6 THEN GOTO610
540 IF LEFT$(MC$,2)<>"VK" THEN GOTO610
550 IF MID$(MC$,3,1)<"0"OR MID$(MC$,3,1)>"9"THEN GOTO610
560 IF RIGHT$(MC$,1)>"0" AND RIGHT$(MC$,1)<"9"THEN GOTO610
570 IF RIGHT$(MC$,2)>"0" AND RIGHT$(MC$,2)<"9"THEN GOTO610
580 IF LEN(MC$)<>6THEN GOTO660
590 IF RIGHT$(MC$,3)>"0" AND RIGHT$(MC$,3)<"9"THEN GOTO610
600 GOTO660
610 PRINT"{RVON} CALLSIGN ENTERED INCORRECTLY {RVOF}":GOTO520
620 REM-----------------------------------------------------------------------
630 REM **********************
640 REM **ENTER PAGE LENGTH**
650 REM **********************
660 INPUT"{DOWN}{DOWN}{DOWN}NO. OF LINES PER PAGE ON PRINTER";PS
670 IF PS<17 THEN PS=17
680 PS=PS-15:REM DEDUCT HEADINGS FROM LINE COUNT
690 REM-- -------  ---------- ----------------------------------------------
700 REM *****************************
710 REM **SELECT CONTEST CATEGORY**
720 REM *****************************
730 PRINT"{CLR}"
740 PRINTTAB(10)"{DOWN}{DOWN}{DOWN}{DOWN}{DOWN}SELECT YOUR CATEGORY"
750 PRINTTAB(17)"{DOWN}(1)VHF"
760 PRINTTAB(17)"(2) HF"
770 INPUT"{DOWN}{DOWN}              SELECT 1 OR 2";CG
780 IF CG<1 OR CG>2 THEN GOTO770
790 IF CG=2 THEN CG$="HF":FR$="14":GOTO990
800 CG$="VHF":FR$="144"
810 REM---------- ----------  ------- ----------------------------------------
820 REM ***************************************************
830 REM **IF VHF ENTER TIME ALLOWANCE BETWEEN CONTACTS**
840 REM ***************************************************
850 PRINT"{CLR}":PRINTTAB(6)"{DOWN}{DOWN}{DOWN}ENTER TIME ALLOWED, IN {RVON}HOUR
S{RVOF},"
860 PRINTTAB(10)"BETWEEN VHF CONTACTS"
870 INPUT"{DOWN}                  ";X
880 X=X*60:REM CONVERT IT TO MINUTES
890 PRINTTAB(7)"{DOWN}{DOWN}TIME BETWEEN VHF CONTACTS"
900 PRINTTAB(14)"IS "X/60" HOURS"
910 PRINTTAB(17)"{DOWN}OK-Y/N"
920 GET A$:IF A$="N" THEN GOTO850
930 IF A$="Y" THEN GOTO990
940 GOTO920
950 REM----  ------ -------  ----  -----  ----------------------------------
960 REM ****************************
970 REM **SELECT CONTEST SECTION**
980 REM ****************************
990 PRINTTAB(10)"{DOWN}{DOWN}SELECT YOUR SECTION"
1000 PRINTTAB(17)"{DOWN}(1)SSB,FM,AM,TV
1010 PRINTTAB(17)"(2)CW,RTTY
1020 INPUT"{DOWN}{DOWN}              SELECT 1 OR 2";SN
1030 IF SN<1 OR SN>2 THEN GOTO1020
1040 IF SN=1 AND CG=1 THEN SN$="TRANSMITTING PHONE":MS$="FM":REM FM FOR VHF
1050 IF SN=1 AND CG=2 THEN SN$="TRANSMITTING PHONE":MS$="SSB":REM SSB FOR HF
1060 IF SN=2 THEN SN$="TRANSMITTING CW/RTTY":MS$="CW"
1070 REM---------- ------ ----------------------------------------------------
1080 REM **********************
1090 REM **INPUT TODAYS DATE**
1100 REM **********************
1110 PRINT"{CLR}"
1120 PRINTTAB(7)"{DOWN}{DOWN}{DOWN}ENTER TODAYS DATE DDMMYYYY"
1130 PRINTTAB(19)"E.G.  16081986'
1140 PRINTTAB(22)" ";:INPUTA$
1150 DD$=LEFT$(A$,2):MM$=MID$(A$,3,2):YY$=RIGHT$(A$,4)
1160 PRINTTAB(8)"YOU HAVE SET THE DATE AT"
1170 PRINTTAB(15)"{DOWN}"DD$"/"MM$"/"YY$
1180 PRINTTAB(13)"{DOWN}IS THIS OK-Y/N"
1190 GET A$:IF A$="N" THEN GOTO1120
1200 IF A$="Y" THEN GOTO1220
1210 GOTO1190
1220 DY$=DD$:DY=VAL(DD$):REM SAVE DATE FOR LATER USE FOR PRINTER AND FRONT PAGE
1230 REM-----------------------------------------------------------------------
1240 REM ************************************************
1250 REM **INPUT G.M.T. AND CHECK FOR INCORRECT ENTRIES**
1260 REM ************************************************
1270 PRINT"{CLR}"
1280 INPUT"{DOWN}{DOWN}{DOWN}{DOWN}          ENTER G.M.T. HHMMSS{DOWN}{LEFT}{LEF
T}{LEFT}{LEFT}{LEFT}{LEFT}{LEFT}{LEFT}{LEFT}";A$
1290 IF LEN(A$)<6 THEN PRINT "{CLR}{DOWN}{DOWN}       {RVON}TIME ENTERED INCORR
ECTLY{RVOF}":GOTO1280
1300 IF LEFT$(A$,2)>"23"THEN PRINTTAB(9)"{DOWN}{DOWN}{RVON}HOURS ENTRY TOO LARGE
{RVOF}":GOTO1280
1310 IF MID$(A$,3,2)>"59"THEN PRINTTAB(8)"{DOWN}{DOWN}{RVON}MINUTES ENTRY TOO LA
RGE{RVOF}":GOTO1280
1320 IF RIGHT$(A$,2)>"59"THEN PRINTTAB(8)"{DOWN}{DOWN}{RVON}SECONDS ENTRY TOO LA
RGE{RVOF}":GOTO1280
1330 TI$=A$:PRINTTAB(7)"{DOWN}{DOWN}G.M.T IS SET TO "LEFT$(TI$,4)" HRS."
1340 PRINTTAB(23)"{DOWN}OK-Y/N"
1350 GET A$:IF A$="N" THEN GOTO1270
1360 IF A$="Y" THEN GOTO1390
1370 GOTO1350
1380 REM CHECK GMT TIME TO SEE IF LOCAL TIME IS 1ST OR 2ND DAY OF CONTEST
1390 IF LEFT$(MC$,3)="VK6"THEN GOTO1420:REM CHECK FOR MIDNIGHT IN W.A.
1400 IF LEFT$(MC$,3)="VK5"OR LEFT$(MC$,3)="VK8" THEN GOTO1440:REM S.A.& N.T.
1410 GOTO1460:REM CHECK FOR MIDNIGHT E.S.T.
1420 IF VAL(TI$)>80000 AND VAL(TI$)<160000THEN D1=1:GOTO1530
1430 GOTO1470
1440 IF VAL(TI$)>80000 AND VAL(TI$)<143000THEN D1=1:GOTO1530
1450 GOTO1470
1460 IF VAL(TI$)>80000 AND VAL(TI$)<140000THEN D1=1:GOTO1530
1470 D1=2:REM 2ND DAY OF CONTEST
1480 REM-----------------------------------------------------------------------
1490 REM ************************************
1500 REM **START TO BUILD UP SCREEN DISPLAY**
1510 REM ************************************
1520 REM NUMBERS TO STRINGS FOR PRINTER
1530 N=N+1000:NS$=STR$(N):REM ADD 1000 FOR DISPLAY OF LEADING ZEROES
1540 NS$=RIGHT$(NS$,3):REM ADD 1000 FOR DISPLAY OF LEADING ZEROES
1550 N=N-1000:REM SUBTRACT THE 1000
1560 PRINT"{CLR}"
1570 PRINTTAB(11)"{DOWN}CONTACT NO. "NS$:REM CONTACT NUMBER
1580 PRINTTAB(13)"{DOWN}{DOWN}FREQUENCY-"FR$
1590 PRINTTAB(11)"      MODE---"MS$
1600 PRINT"{DOWN}ENTER ↑(RET) TO CHANGE FREQUENCY"
1610 PRINT"       *(RET) TO CHANGE MODE"
1620 PRINT"    END(RET) TO END OR SAVE LOG"
1630 INPUT"{DOWN}{DOWN}ENTER HIS CALLSIGN";CS$
1640 IF CS$=MC$ THEN A$="{RVON} THATS YOUR OWN CALLSIGN DUMMY {RVOF}{UP}":GOTO022
50
1650 IF LEFT$(CS$,1)="↑" THEN GOTO1820:REM CHANGE FREQUENCY
1660 IF LEFT$(CS$,1)="*" AND SN=1 THEN GOTO1860:REM CHANGE PHONE MODE
1670 IF LEFT$(CS$,1)="*" AND SN=2 THEN GOTO1990:REM CHANGE CW MODE
1680 IF CS$="END" THEN GOTO3990:REM FINISH OFF LOG
1690 REM CHECK THAT CALLSIGN ENTERED CORRECTLY
1700 IF LEN(CS$)<5 OR LEN(CS$)>6 THEN GOTO1790
1710 IF LEFT$(CS$,2)="VK"ORLEFT$(CS$,2)="P2"ORLEFT$(CS$,2)="ZL"THEN GOTO1730
1720 GOTO1790
1730 IF MID$(CS$,3,1)<"0"OR MID$(CS$,3,1)>"9"THEN GOTO1790
1740 IF RIGHT$(CS$,1)>"0" AND RIGHT$(CS$,1)<"9"THEN GOTO1790
1750 IF RIGHT$(CS$,2)>"0" AND RIGHT$(CS$,2)<"9"THEN GOTO1790
1760 IF LEN(CS$)<>6THEN GOTO1780
1770 IF RIGHT$(CS$,3)>"0" AND RIGHT$(CS$,3)<"9"THEN GOTO1790
1780 GOTO2100
1790 PRINT"{RVON} CALLSIGN ENTERED INCORRECTLY {RVOF}":GOTO1630
1800 GOTO2100
1810 REM SELECT A NEW FREQUENCY
1820 INPUT"{DOWN}ENTER NEW FREQUENCY";FR$
1830 IF CG$="VHF"AND(VAL(FR$)<30 OR VAL(FR$)>300)THEN GOTO1860
1840 IF CG$="HF"AND(VAL(FR$)<1.8 OR VAL(FR$)>29)THEN GOTO1860
1850 GOTO1530
1860 A$=" {RVON} INVALID FREQUENCY {RVOF}{UP}":GOSUB3870:GOTO1820
1870 REM SELECT A NEW MODE
1880 PRINT" SELECT NEW MODE (1)SSB"
1890 PRINT"                 (2) FM"
1900 PRINT"                 (3) AM"
1910 PRINT"                 (4) TV"
1920 INPUT"{DOWN}ENTER 1,2,3 OR 4";MS
1930 IF MS=1 THEN MS$="SSB"
1940 IF MS=2 THEN MS$="FM"
1950 IF MS=3 THEN MS$="AM"
1960 IF MS=4 THEN MS$="TV"
1970 IF MS<1 OR MS>4 THEN GOTO1920
1980 GOTO1530
1990 PRINT" SELECT NEW MODE (1)CW"
2000 PRINT"                 (2)RTTY"
2010 INPUT"{DOWN}ENTER 1 OR 2";MS
2020 IF MS=1 THEN MS$="CW"
2030 IF MS=2 THEN MS$="RTTY"
2040 IF MS<1 OR MS>2 THEN GOTO2010
2050 GOTO1530
2060 REM---------------------- ----------------------------------------------
2070 REM *****************************
2080 REM **COMPARE CURRENT CONTACT TO PREVIOUS CONTACTS**
2090 REM *****************************
2100 FOR S=0TOC
2110 IF CG$="VHF" THEN GOTO2150
2120 IF LEFT$(CS$,2)<>"VK"THEN GOTO2150:REM NO CALL AREA LIMIT ON P2 AND ZL
2130 IF LEFT$(CS$,3)<>LEFT$(MC$,3)THEN GOTO2150:REM SAME VK CALL AREA CHECK
2140 A$="{RVON} INVALID CALL AREA {RVOF}{UP}":GOTO2250
2150 IF CS$<>C$(S)THEN GOTO2270:REM CALLSIGN CHECK
2160 IF FR$<>F$(S)THEN GOTO2270:REM FREQUENCY CHECK
2170 IF MS$<>M$(S)THEN GOTO2270:REM MODE CHECK
2180 IF CG$="HF" THEN GOTO2240:REM NO TIME CHECK NEEDED ON HF
2190 REM *******CONVERT TIMES TO MINUTES FOR VHF FIME LAPSE CHECK*******
2200 T1=VAL(LEFT$(T$(S),2))*60+VAL(RIGHT$(T$(S),2)):REM CONTACT TIME IN MINS.
2210 T2=VAL(LEFT$(TI$,2))*60+VAL(MID$(TI$,3,2)):REM CURRENT TIME IN MINS.
2220 IF T2<T1 THEN T2=T2+1440:REM ADD 24HRS IF AFTER 0000HRS
2230 IF T2>T1+X THEN GOTO2270:REM TIME CHECK FOR VHF
2240 A$="{RVON} WORKED BEFORE AT "+T$(S)+" HOURS {RVOF}{UP}"
2250 GOSUB3870
2260 GOTO1530
2270 NEXT S
2280 REM---------------------------------------------------------------- ----
2290 REM ******************************************
2300 REM **ADD NEW CALL, FREQ, TIME & MODE TO LOG**
2310 REM ******************************************
2320 PRINTTAB(13)"{DOWN}{DOWN}NOT YET WORKED"
2330 PRINTTAB(8)"{DOWN}ENTER CALL INTO LOG? Y/N"
2340 GETA$:IF A$="Y" THEN GOTO2370
2350 IF A$="N" THEN GOTO1530
2360 GOTO2340
2370 C$(C)=CS$:F$(C)=FR$:T$(C)=LEFT$(TI$,4):M$(C)=MS$
2380 PRINT"{DOWN}CONTACT TIME----"T$(C)" G.M.T."
2390 REM---------------------------------------------------------- ----------
2400 REM ******************************************
2410 REM **ENTER RECEIVED NUMBER AND CHECK IF VALID**
2420 REM ******************************************
2430 NG$="":INPUT"{DOWN}{DOWN}ENTER NO.RECEIVED ";NG$
2440 IF LEN(NG$)<1 OR LEN(NG$)>3 THEN GOTO2500
2450 NG$=(LEFT$("000",3-(LEN(NG$))))+NG$
2460 IF LEFT$(NG$,1)<"0" OR LEFT$(NG$,1)>"9" THEN GOTO2500
2470 IF MID$(NG$,2,1)<"0" OR MID$(NG$,2,1)>"9" THEN GOTO2500
2480 IF RIGHT$(NG$,1)<"0" OR RIGHT$(NG$,1)>"9" THEN GOTO2500
2490 GOTO2510
2500 PRINT" {RVON} INVALID NUMBER {RVOF}":GOTO2430
2510 TS=TS+1:REM INCREMENT RUNNING TOTAL SCORE
2520 REM---------------------- ---------- ----------------------------------
2530 REM ************************************
2540 REM **ASSEMBLE AND SEND ENTRY TO PRINTER**
2550 REM ************************************
2560 OPEN1,4,15
2570 OPEN4,4
2580 CMD4
2590 IF LC<>1 THEN GOTO2780:REM CHECK FOR NEW PAGE
```

```
2600 PRINT:PRINT:PRINT:PRINT
2610 PRINTTAB(26)"REMEMBRANCE DAY CONTEST "YY$
2620 PRINT"CALLSIGN:   "MC$
2630 PRINT"CATEGORY:   "CG$
2640 PRINT"SECTION:    "SN$
2650 REM CHECK FOR CHANGE OF DATE IF AFTER MIDNIGHT LOCAL TIME
2660 IF LEFT$(MC$,3)="VK6"THEN GOTO2690:REM CHECK FOR MIDNIGHT IN W.A.
2670 IF LEFT$(MC$,3)="VK5"OR LEFT$(MC$,3)="VK8" THEN GOTO2710:REM S.A.& N.T.
2680 GOTO2730:REM CHECK FOR MIDNIGHT E.S.T.
2690 IF D1=1AND(VAL(TI$)>160000 OR VAL(TI$)<80000)THEN DY=VAL(DD$)+1
2700 GOTO2740
2710 IF D1=1AND(VAL(TI$)>143000 OR VAL(TI$)<80000)THEN DY=VAL(DD$)+1
2720 GOTO2740
2730 IF D1=1AND(VAL(TI$)>140000 OR VAL(TI$)<80000)THEN DY=VAL(DD$)+1
2740 DY=DY+100:DY$=STR$(DY):DY$=RIGHT$(DY$,2):DY=DY-100:REM ADD LEADING ZERO
2750 PRINT"DATE:        "DY$"/"MM$"/"YY$
2760 PRINT"     TIME(UTC)    BAND(MHZ)   MODE     CALL    NO.SENT    NO.RECVD    ";
2770 PRINT"SCORE    TOTAL"
2780 SC$=STR$(SC):TS$=STR$(TS)
2790 PRINTTAB(10-(LEN(T$(C))))T$(C);:REM PRINT TIME OF CONTACT
2800 PRINTTAB(12-(LEN(F$(C))))F$(C);:REM PRINT FREQUENCY OF CONTACT
2810 PRINTTAB(9-(LEN(M$(C))))M$(C);:REM PRINT MODE OF CONTACT
2820 PRINTTAB(3)C$(C);:REM PRINT CALLSIGN
2830 PRINTTAB(13-(LEN(C$(C)))-(LEN(NS$)))NS$;:REM PRINT NO. SENT
2840 PRINTTAB(11-(LEN(NG$)))NG$;:REM PRINT NUMBER RECEIVED
2850 PRINTTAB(7)"1";:REM PRINT INDIVIDUAL CONTACT SCORE
2860 PRINTTAB(9-(LEN(TS$)))TS$;:REM PRINT RUNNING TOTAL
2870 PRINT#1,"LN":REM SUPPRESS LINE FEED
2880 PRINT#4
2890 CLOSE4
2900 PRINT#1,"LY":REM RESTORE LINE FEED
2910 CLOSE1
2920 REM--- ---- ----- - - ---------- ---------- ----------
2930 C=C+1:REM INCREMENT ARRAY POINTER
2940 N=N+1:REM LOG NUMBER INCREMENT
2950 PT=PT+1:REM INCREMENT PAGE SCORE
2960 IF N=500THEN CS$="END":A$=" [RVON]END OF LOG [RVOF][UP]":GOSUB3870:GOTO3030
2970 REM------ ----------

2980 REM ***********************************************
2990 REM **CHECK FOR END OF PAGE TO ADD PAGE SCORE AND TOTAL SCORE**
3000 REM ***********************************************

3010 LC=LC+1:REM LINE COUNTER FOR PRINTER
3020 IF LC<>PS THEN GOTO3260:REM CHECK FOR END OF PAGE
3030 OPEN1,4,15
3040 OPEN4,4
3050 CMD4
3060 IF LC=1 THEN PN=PN-1:GOTO3120:REM NO ENTRIES YET, IGNORE PAGE FOOTING
3070 FOR A=0 TO (PS-LC):REM)  FORCES AN END OF PAGE FOR END OF LOG
3080 PRINT:             REM)
3090 NEXT A:            REM)
3100 PRINT:PRINTTAB(10)"PAGE NO. "PN;
3110 PRINTTAB(20)"PAGE SCORE= "PT" CONTEST SCORE= "TS:PRINT:PRINT:
3120 PRINT#1,"LN":REM SUPPRESS LINE FEED
3130 PRINT#4
3140 CLOSE4
3150 PRINT#1,"LY":REM RESTORE LINE FEED
3160 CLOSE1
3170 P(PN,1)=PN:P(PN,2)=PT:REM SAVE PAGE NO. AND PAGE TOTAL FOR FRONT SHEET
3180 IF CS$="END" THEN GOTO3360
3190 LC=1:REM RESET LINE COUNT
3200 PT=0:REM RESET PAGE TOTAL
3210 PN=PN+1:REM PAGE NUMBER
3220 REM---------- ----------

3230 REM ***********************************************
3240 REM **FREE UP STRING STORAGE SPACE EVERY 20TH ENTRY**
3250 REM ***********************************************

3260 FM=FM+1
3270 IF FM<>20 THEN GOTO1530
3280 PRINT"{DOWN}{DOWN}   PLEASE WAIT WHILE I TIDY UP A BIT."
3290 FM=0
3300 XX=FRE(0):REM FREES UP STRING STORAGE SPACE. THIS LINE CAN BE DELETED
3310 GOTO1530
3320 REM---------- ------ ----------

3330 REM ************************
3340 REM **PRINT LOG TITLE PAGE**
3350 REM ************************

3360 INPUT"{CLR}{DOWN}{DOWN}{DOWN}{DOWN}WHAT IS YOUR NAME";NM$
3370 PRINT"{DOWN}ENTER YOUR ADDRESS"
3380 INPUT"{DOWN}WHAT IS YOUR HOUSE NUMBER";HN$
3390 INPUT"{DOWN}YOUR STREET NAME";HS$
3400 INPUT "{DOWN}YOUR SUBURB";HD$
3410 INPUT"{DOWN}YOUR POSTCODE";HP$
3420 PRINT"{CLR}":PRINTTAB(5)"{DOWN}{DOWN}{DOWN}{DOWN}{DOWN}YOU HAVE ENTERED YOU
R NAME AND"
3430 PRINTTAB(12)"ADDRESS AS SUCH."
3440 PRINTTAB(10)"{DOWN}{DOWN}{DOWN}"NM$
3450 PRINTTAB(10)HN$" "HS$;PRINTTAB(10)HD$;PRINTTAB(10)HP$
3460 PRINT"{DOWN}ARE YOU HAPPY WITH THIS?":PRINTTAB(10)"{DOWN}{DOWN}ENTER Y/N"
3470 GET A$:IF A$="N"THEN GOTO3360
3480 IF A$="Y"THEN GOTO3500
3490 GOTO3470
3500 OPEN1,4
3510 FOR A=1TO6:PRINT#1:NEXTA:REM INSERT SPACE AT TOP OF PAGE
3520 PRINT#1,CHR$(27);"W";CHR$(1):REM SET ENLARGED PRINT MODE
3530 PRINT#1,CHR$(27);"-";CHR$(1):REM SET UNDERLINE MODE
3540 PRINT#1,'      REMEMBRANCE DAY CONTEST "YY$"          '
3550 PRINT#1,CHR$(27);"W";CHR$(0):REM CANCEL ENLARGED PRINT MODE
3560 PRINT#1,CHR$(27);'-';CHR$(0):REM CANCEL UNDERLINE MODE
3570 CMD1
3580 PRINTTAB.3)"CATEGORY:---  "CG$
3590 PRINTTAB(3) SECTION:------"SN$
3600 PRINTTAB(3)"CALLSIGN:-----'MC$
3610 PRINTTAB(3)"NAME:--  ------ NM$
3620 PRINTTAB(3)"ADDRESS:-------"HN$' "HS$", 'HD$", "HP$"."
3630 PRINTTAB(3)"TOTAL SCORE:--"TS
3640 PRINT:PRINTTAB(3)"PAGE TALLY:";
3650 PRINTTAB(13-LEN(STR$(PN)))PN" SHEETS';
3660 PRINTTAB(24-LEN(STR$(TS)))TS" POINTS"
3670 PRINT:PRINTTAB(24)'PAGE                                    SCORE"
3680 FOR S=1TO PN
3690 PRINTTAB(27-LEN(STR$(P(S,1))))P(S,1);;
3700 PRINTTAB(31-LEN(STR$(P(S,2))))P(S,2)
3710 NEXTS
3720 PRINTTAB(21-LEN(STR$(PN)))"PAGES "PN;:PRINTTAB(25-LEN(STR$(TS)))"TOTAL "TS
3730 PRINT#1,CHR$(27);"-";CHR$(1):REM SET UNDERLINE MODE
3740 PRINT#1,' DECLARATION
3750 PRINT#1,CHR$(27);"-";CHR$(0):REM CANCEL UNDERLINE MODE
3760 CMD1
3770 PRINTTAB(8)"I HEREBY CERTIFY THAT I HAVE OPERATED IN ACCORDANCE WITH "
3780 PRINTTAB(8)"THE RULES AND SPIRIT OF THE CONTEST."
3790 PRINT:PRINTTAB(50)"SIGNED"
3800 PRINT:PRINT:PRINTTAB(43)"----------"
3810 PRINTTAB(48)DY$"/"MM$"/"YY$
3820 PRINT#1:CLOSE1:END
3830 REM----- ---------- ---------- ---- ---- ---- ---- ---- ---- ---- ----

3840 REM ************************************
3850 REM **SUBROUTINE FOR FLASHING MESSAGES**
3860 REM ************************************

3870 PRINT"{DOWN}{DOWN}"
3880 FOR DT=1TO3
3890 PRINTTAB((40-LEN(A$))/2)A$
3900 FOR DL=1TO150:NEXT DL
3910 PRINT"                                        {UP}"
3920 FOR DL=1TO150:NEXT DL
3930 NEXT DT
3940 RETURN
3950 REM--- ---------- ---------- ---------- ---------- ---------- ----------

3960 REM **********************
3970 REM **SAVE LOG TO DISK**
3980 REM **********************

3990 PRINT"{CLR}"
4000 PRINTTAB(7)"{DOWN}{DOWN}{DOWN}{DOWN}{RVON}E{RVOF}ND LOG & PRINT FRONT PAGE
4010 PRINTTAB(7)"{RVON}S{RVOF}AVE UNFINISHED LOG TO DISC
4020 PRINTTAB(10)"{DOWN}ENTER E OR S"
4030 GET A$:IF A$="S" THEN GOTO4140
4040 IF A$="E" THEN GOTO4060
4050 GOTO4030
4060 PRINTTAB(6)"{DOWN}{DOWN}THIS WILL FINISH OFF THE LOG"
4070 PRINTTAB(3)"AND THE PREVIOUS CONTACTS WILL NOT"
4080 PRINTTAB(13)"BE RECOVERABLE"
4090 PRINTTAB(10)"{DOWN}IS THIS WHAT YOU WANT?"
4100 PRINTTAB(15)"{DOWN}ENTER Y/N"
4110 GET A$:IF A$="N" THEN GOTO3990
4120 IF A$="Y" THEN GOTO3030
4130 GOTO4110
4140 PRINTTAB(9)"{DOWN}{DOWN}INSERT FORMATTED DISK."
4150 PRINTTAB(7)"{DOWN}{DOWN}PUSH SPACE BAR WHEN READY"
4160 GETA$:IF A$=" "THEN GOTO4180
4170 GOTO4160
4180 OPEN2,8,2,"@0: RD LOG,S,W"
4190 REM   FIRST CHECK FOR DISK ERRORS.
4200 OPEN15,8,15
4210 INPUT#15,U,U$,V,W
4220 IF U<20THEN GOTO4280:REM NO ERROR
4230 PRINTTAB(14)"{DOWN}{RVON} DISK ERROR {RVOF} ";:PRINTTAB((40-LEN(U$))/2)"{DOW
N}"U$
4240 PRINTTAB(7)"{DOWN}{DOWN}PUSH SPACE BAR TO CONTINUE."
4250 GET A$:IF A$<>" "THEN GOTO4250
4260 CLOSE2:CLOSE15:GOTO4180
4270 REM   SAVE LOG
4280 PRINT#2,C:PRINT#2,N:PRINT#2,TS:PRINT#2,LC:PRINT#2,PT:PRINT#2,PS:PRINT#2,PN
4290 PRINT#2,SN:PRINT#2,X
4300 PRINT#2,CG$:PRINT#2,FR$:PRINT#2,SN$:PRINT#2,MS$:PRINT#2,MC$
4310 FOR S=1 TO PN
4320 PRINT#2,P(S,1):PRINT#2,P(S,2)
4330 NEXTS
4340 FOR S=0TO(C-1)
4350 PRINT#2,T$(S):PRINT#2,F$(S):PRINT#2,M$(S):PRINT#2,C$(S)
4360 NEXT S
4370 PRINT#2,"*"
4380 CLOSE2:END
4390 REM--- ---------- ---------- ---- ---- ---- ---- ---- ---- ---- ----

4400 REM **********************
4410 REM **LOAD LOG FROM DISK**
4420 REM **********************

4430 OPEN2,8,2," RD LOG,S,R"
4440 REM   FIRST CHECK FOR DISK ERRORS.
4450 OPEN15,8,15
4460 INPUT#15,U,U$,V,W
4470 IF U<20THEN GOTO4530:REM NO ERROR
4480 PRINTTAB(14)"{DOWN}{RVON} DISK ERROR {RVOF} ";:PRINTTAB(INT((40-LEN(U$))/2))
"{DOWN}"U$
4490 PRINTTAB(7)"{DOWN}{DOWN}PUSH SPACE BAR TO CONTINUE."
4500 GET A$:IF A$<>" "THEN GOTO4500
4510 CLOSE2:CLOSE15:GOTO4430
4520 REM   GET LOG
4530 INPUT#2,C:REM ARRAY POINTER
4540 INPUT#2,N:REM NO. SENT COUNT
4550 INPUT#2,TS:REM TOTAL SCORE
4560 INPUT#2,LC:REM LINE COUNT
4570 INPUT#2,PT:REM PAGE TOTAL
4580 INPUT#2,PS:REM PAGE SIZE
4590 INPUT#2,PN:REM PAGE NO.
4600 INPUT#2,SN:REM SECTION SELECT FLAG
4610 INPUT#2,X :REM VHF TIME LIMIT
4620 INPUT#2,CG$:REM CATEGORY
4630 INPUT#2,FR$:REM FREQUENCY
4640 INPUT#2,SN$:REM SECTION
4650 INPUT#2,MS$:REM MODE
4660 INPUT#2,MC$:REM BASE CALLSIGN
4670 FOR S=1 TO PN
4680 INPUT#2,P(S,1):REM PAGE NO. FOR FRONT PAGE
4690 INPUT#2,P(S,2):REM PAGE TOTAL FOR FRONT PAGE
4700 NEXTS
4710 S=0
4720 INPUT#2,T$(S):REM TIME WORKED
4730 IF T$(S)="*"THEN PRINT"{CLR}":PRINTTAB(15)"{DOWN}{DOWN}{DOWN}LOG ENTERED":G
OTO4790
4740 INPUT#2,F$(S):REM FREQUENCY
4750 INPUT#2,M$(S):REM MODE WORKED
4760 INPUT#2,C$(S):REM CALL WORKED
4770 S=S+1
4780 GOTO4720
4790 CLOSE2
4800 CLOSE15
4810 GOTO1120
4820 REM---------- ---------- ---------- ---- ---- ---- ---- ----

4830 REM ***********************************************
4840 REM **ROUTINE FOR SEEING WHAT HAS GONE ONTO DISK**
4850 REM ***********************************************

4860 OPEN2,8,2," RD LOG,S,R'
4870 REM:OPEN1,4
4880 INPUT#2,X$
4890 PRINTX$;
4900 REM:PRINT#1,X$;
4910 IF X$="*"THEN GOTO4930
4920 GOTO4880
4930 REM:PRINT#1
4940 REM:CLOSE1
4950 CLOSE2:END

READY.
```

CONTEST COMPUTER LOG

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A computer program for the Commodore C-64, C-128, CBM 4032 and CBM 8032, particularly useful for the RD Contest, but indeed useful for any contest with minor modifications.

The program was initially written,six years ago, as a checking program for the RD Contest, so that duplication of call signs on the same band or mode of operation could be avoided.

When originally written, the author only had a Commodore 3016 and cassette recorder. Since then the program has undergone many modifications, and the author has acquired more computer equipment!

As well as checking to see if the same station has been worked before, the program also checks to see if that station has been worked on other bands or using different modes, although it takes twice the time to check, as well as printing each contact in the format as required by the Contest Manager, etc.

It also creates and appends (adds to) a sequential file on disc, which is very handy if there is a program crash (operator error), power failure, etc. You can reload all contacts to date from disc and continue, as well as have a disk record of the contest.

Those unfortunate enough not to possess a printer or have a disc drive, can still use the program for checking and write down their contacts after the contest is over by simply recalling them from the memory onto the screen. Is is also possible to do a complete dump to a printer of all contacts during the contest or thus far.

There are prompts at the beginning of the program to ask what colour writing (C-64 only), screen and border (C-64 and C-128 only), then how many lines to be printed per page, if you have a printer, if you have a disc drive, if you want a previous band check on a call sign or not. It then asks you to enter two of the criteria, the **band** and **mode.** If a printer is available it then prints the heading onto the first sheet, then goes to the input stage and awaits entry of a call sign. When the call sign is entered, and if that station has already been worked, it tells you and will not accept it. If it has not been worked previously it then asks you to **enter number received.** As soon as this is complete it will pass it to memory, print it and append it to the disc file (if those facilities are available and have been chosen).

A word of warning to those who use the disc file — once a contest is finished you must either **rename** the file or use another disc, otherwise the next contest you enter will append (add) to the last one, and if there is a need to recall them from disc you will not only have this contest's contacts, but the last one as well.

This program is written in very simple BASIC so anyone with a different computer and a little programming experience can adapt it to their computer with very few changes.

Note that lines 1300 and 1940 are different for the C-64, C-128 and 4032 (8032). The lines in the printout are for the C-64. For the C-128 they should be altered thus:

1300 DIMA$(2100)
1940 PRINT2001-NN" CONTACTS LEFT MEMORY="FRE(1)

For the 4032 (8032) they should be altered to:

1300 DIMA$(760)
1940 PRINT751-NN" CONTACTS LEFT MEMORY="FRE(0)

Line 2560 should be used for the C-64 only.

The REMed statements can be omitted from the program when being typed in as they take up valuable memory space, which may be needed for other things.

The C-64 allows for about 1000 contacts, the 4032 (8032) about 750 and the C-128 over 2100.

Although the C-64 will "hang-up" at times (first noticed about 600 contacts), it does resume after a moment, it is just necessary to be patient.

Checking of memory in the C-64 can be time-consuming, especially after quite a few contacts. It is therefore advisable that, if it is to be checked, it should be left to quiet times during the contest.

For those with a printer, testing how many lines per page has to be done over two or three pages as the separating space to avoid perforations has to be taken into account. It also prints **page 1 of . . .** incrementing each page. The heading is printed at the top of the page.

eg: DATE TIME BAND MODE CALLSIGN NUM SNT NUM RCD PTS

On the change of date, press the appropriate key and change the date. The new date will print when the next contact is printed instead of **DITO** (//) marks in the left column.

The criteria of each contact is CALLSIGN, BAND and MODE. If BAND or MODE is changed, do not forget to change it on the computer by pressing the appropriate key (indicated at the top of the screen).

If there is an error in the first key stroke, say 'V' is typed instead of 'B', it must be corrected by pressing the **return** key and beginning again. The remainder of the call sign can be corrected with the 'INST/DEL' key.

If the call sign is input incorrectly you can type a minus '-' at the 'number given' input and start again.

Should the program crash, type CONT 'return' and the program should continue. If it will not, the checking system is unserviceable unless you have a disc drive to reload the files from.

Instructions are all displayed at the top of the screen when the computer is ready for call sign input.

Anyone requiring further information may contact the writer, QTHR. ■

```
10 REMARK *** DION P THOMAS   VK2PD   P.O. BOX 77  PENSHURST  N.S.W.  2222
20 REM *** WHEN TYPING OUT THIS, YOU MAY OMIT THE REMARK & REM STATEMENTS
50 REM *** TO SAVE MEMORY, WHICH WILL BE NEEDED FOR THE CONTEST.
100 REM *** THEY ARE SIMPLY THERE SO YOU CAN TRY TO FOLLOW THE PROGRAM WORKING
120 X=8:Y=8:Z=7
140 GOTO600
160 REM *** DISK FILE HANDLING
180 REM *** THIS OPENS SEQUENTIAL FILE ON DISK AND APPENDS ALL CONTACTS INPUT
200 IFA1=1GOTO240
220 OPEN5,8,5,"RD CONT FILE,S,W":GOTO250
240 OPEN5,8,5,"RD CONT FILE,S,A
250 IFDS=63THENA1=1:GOTO240
260 PRINT#5,DG$:PRINT#5,DF$:CLOSE5,8,5:A1-1:RETURN
280 REM *** THIS READS SEQUENTIAL FILE ON DISK, APPENDS AND RESTORES TO MEMORY
300 M=1:PRINT"J":OPEN5,8,5,"RD CONT FILE,S,R"
320 INPUT#5,DG$:LETDG=VAL(DG$)
340 IFDG>999THENW$=""
360 IFDG<1000THENW$=" "
380 IFDG<100THENW$="  "
400 IFDG<10THENW$="   "
420 INPUT#5,DF$:PRINTW$;DG$;" ";DF$:A$(M)=DF$:IFBB$="$"GOTO540
440 IFST-64GOTO540
460 PRINT"PRESS 'RETURN' TO CONTINUE  OR  R=ETURN
480 GETZ$:IFZ$-""GOTO480
500 IFZ$="R"THENCLOSE5,8,5:GOTO1880
520 PRINT"                                                    'TT"
540 IFST=64THENCLOSE5,8,5:GOTO5160
560 M=M+1:GOTO320
580 REMARK *** THIS IS FOR C64 SCREEN COLOUR (LINE 900)
600 POKE53280,(X):POKE53281,(Y):POKE646,(Z)
620 L=56:P=0
640 PRINT"J            N   CONTEST  LOG   "
660 PRINT"        BY:  DION (DANNY) PETER THOMAS
680 PRINT"           VK/AX2VCV/KDT/DBT/PD"
700 PRINT"(MODS AT 12/82 5/83-7/84 8/85 8&12/86)
720 PRINT"(TO CHANGE LINES PER PAGE TYPE L=) N"L"
740 PRINT"TO COLOUR BORDER =1  SCREEN =2  CURSOR =3
760 PRINT"TAB(32)"HHMMSS
780 PRINT"SET THE TIME =GMT  MY=-N  : TIME IS  ";
800 PRINTTI$
820 GETTE$:IFTE$="L"THENINPUT"HOW MANY LINES PER PAGE";L:GOTO640
840 IFTE$="1"THENX=X+1:GOTO600
860 IFTE$-"2"THENY=Y+1:GOTO600
880 IFTE$="3"THENZ=Z+1:GOTO600
900 IFTE$<>"Y"ANDTE$<>"N"GOTO780
920 PRINT"TAB(13)"N "TE$"  ":IFTE$-"Y"THENGOSUB5600
940 PRINT"DO YOU HAVE A PRINTER"
960 GETP$:IFP$-""GOTO960
980 IFP$-"Y"THENPRINT" "TAB(31)"= YES ":GOTO1060
1000 PRINT" "TAB(32)"= NO ":GOTO1080
1020 IFP$<>"Y"ANDP$<>"N"GOTO940
1040 PRINT:PRINT"= YES ":GOTO1060
1060 GOSUB4800:GOSUB4920:GOSUB5040
1080 PRINT"DO YOU HAVE A DISK DRIVE
1100 GETG$:IFG$=""GOTO1100
1120 IFG$-"Y"THENPRINT" "TAB(31)"= YES ":GOTO1180
1140 PRINT" "TAB(32)"= NO "
1160 REMARK *** CAN CHECK IF A CALLSIGN HAS BEEN WORKED ON OTHER BANDS OR MODES
1180 PRINT"DO YOU WISH A PREVIOUS BAND CHECK ?
1200 GETCB$:IFCB$=""GOTO1200
1220 IFCB$<>"Y"ANDCB$<>"N"GOTO.200
1240 PRINT" "TAB(36)"= "CB$" ":FORQQ-1TO1000:NEXT
1260 K$=" ":V$-"   ":D$ "   ":T$="    "
1280 REM ** COMMODORE NEEDS TO DIMENSION A STRING IF MORE THAN 10
1300 DIMA$(1150)
1320 IFP$-"Y"THENGOSUB1360:GOSUB1480:GOTO1880
1340 IFP$-"N"THENGOSUB1480:GOTO1880
1360 GOSUB6000
1380 PRINT"  DATE      TIME    BAND    MODE    CALLSIGN     NUM.SNT --  NUM.RCD."
;
1400 PRINT"      PTS.
1420 PRINT:PRINTDA$;U$;DM$;U$;DY$
1440 GOSUB6020
1460 RETURN
1480 GOSUB1560:GOSUB1740:RETURN
1500 REMARK *** ENTERS BAND & MODE - TWO OF THE CRITERIA OF LOG CHECKING
1520 REMARK *** CHANGE OF EITHER WILL ALLOW THE SAME CALLSIGN TO BE ACCEPTED
1540 REMARK *** AGAIN. BOTH ARE LIMITED TO FOUR (4) CHARS EACH.
1560 PRINT"160,80,40,30,20,18,15,12,10,6,2MTRS,70CM
1580 PRINT"1.8,3.5,7,10,14,17,21,24,28,52,144,430MZ
1600 PRINTTAB(8)"(IN METERS   TOP LINE)
1620 PRINTTAB(7)"5:(MAXIMUM 4 CHARACTERS)
1640 PRINT"      -ENTER BAND
1660 INPUT"   ";Q$
1680 IFLEFT$(Q$,1)=""GOTO1560
1700 Q$-LEFT$(Q$+"     ",4):Q-VAL(Q$):IFQ=0GOTO1560
1720 RETURN
1740 PRINT"1.8 SSB, FM, CW, RTTY, ATV, ETC. "
1760 PRINTTAB(7)"5:(MAXIMUM 4 CHARACTERS)
1780 PRINT"      -ENTER MODE
1800 INPUT"   ";M$
1820 IFLEFT$(M$,1)-""GOTO1740
1840 M$-LEFT$(M$+"     ",4)
1860 RETURN
```

```
1880 NN-M+1:LN=0
1900 PRINT"RD CONTEST LOG VK2PD NEXT NO. IS ";NN;"
1920 PRINT
1940 PRINT" 1101 NN  CONTACTS LEFT    MEMORY CHECK
1960 REMARK ** YOU HAVE TO WORK OUT FOR YOURSELF HOW MANY CONTACTS POSSIBLE
1980 REMARK ** IN YOUR COMPUTER (MEMORY) AND CHANGE VALUE IN LINE 3165 (1101)
2000 PRINT
2020 PRINT"NEW NUMBER  LAST PG NO-  PAGE HEADING
2040 PRINT"DISPLAY LOG  -  F1       HARD COPY  -  F2
2060 PRINT"CHANGE:- BAND   F3   MODE   F4   DATE  - F5
2080 PRINT"TIME - F6       PRINTER ";
2100 IFP$="Y"GOTO2140
2120 PRINT"ON  -  F7    F8    OFF    F8":GOTO2160
2140 PRINT"ON    F7    OFF    F8
2160 PRINT"PREVIOUS BAND CHECK  -  ";
2180 IFCB$="Y"GOTO2220
2200 PRINT"ON  -  F1    F2    OFF    F2":GOTO2240
2220 PRINT"ON  -  F1    OFF    F2
2240 PRINT"RECALL DISK FILES - F3   INDIVIDUALLY   F4
2260 PRINT"ERASE LAST ENTRY - F7    LOAD FRNT SHT   F8
2280 PRINT" CALLSIGN :     BAND:    MODE:  -  TIME
2300 REM *** CONSTANT TIME DISPLAY ON SCREEN
2320 TH$=LEFT$(TI$,2)
2340 TM$=MID$(TI$,3,2)
2360 TS$=RIGHT$(TI$,2)
2380 TA$=TH$+":"+TM$+":"+TS$
2400 PRINT"[][][][
```

Aerials — Some practical aspects

WHAT IS AN AERIAL?

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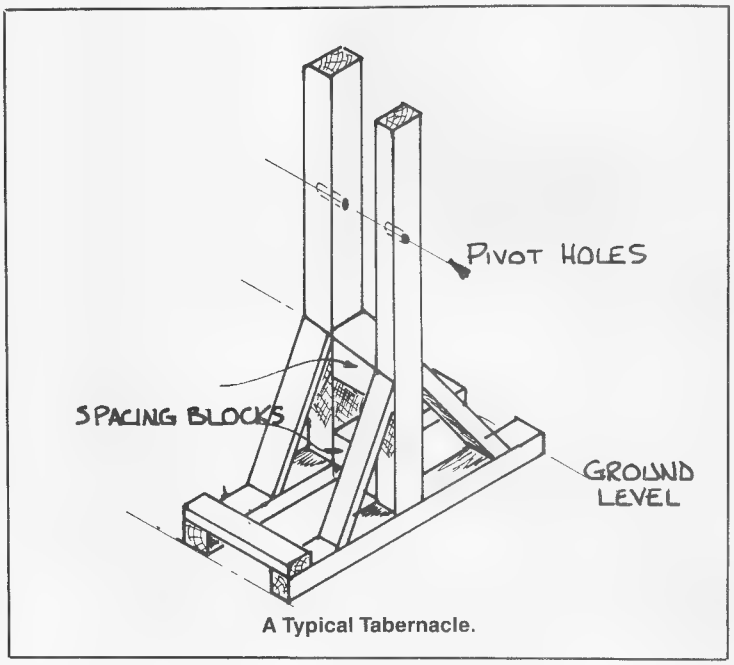
An aerial basically may consist of any length of wire, rod or tubing, mast or tower, metal sheet or designed aperture in a metal sheet or the skeleton version thereof, or a geometric shape, into which RF energy is fed, or, alternatively, from which RF energy is taken; ie transmitting or receiving modes.



A Typical Tabernacle.

The aerial may be a simple piece of wire of random length or it may be a very complex design of elements which are accurately determined and cut to size and space. It may be vertical, horizontal, or at an angle to either plane, or it may well be a helix. In the simplest case, it may be a combination of some of these to take advantage of existing trees or other supports.

In the great majority of cases that interest the average amateur fraternity, the basic aerial will be derived from the horizontal dipole and be made of some convenient and available type of wire or tubing. Most beam aerials will be of the ready-made variety, particularly at HF. However, we still see some very fine examples of home-brew beams, but they do not come within the scope of this article. In any case, descriptions of such aerials are frequently accompanied with the construction details used by the author.

AERIAL GAIN

We are all familiar with the doughnut or toroid shaped radiation pattern of our old faithful half-wave dipole in free space, but a surprising number of amateurs are unaware of the effect that gain has on the radiation pattern and what is meant by the term gain when applied to an aerial. If we look at another old friend, the isotropic antenna, this presupposes a spherical radiation pattern with the isotropic antenna as a point source of energy at the centre of the sphere. Now this is a purely theoretical device, as no such antenna exists, but it is a very handy tool for the aerial designer.

If we imagine ourselves looking from this antenna to any point on the surface of the sphere, then the field strength will be the same at all points. If, however, we arrange a practical aerial to "illuminate" only one or two points of the sphere, then our practical aerial must have gain in these directions by concentrating energy at these points. The point often overlooked by quite a number of amateurs and students for licenses is that this gain *only exists at the expense of radiation in other directions.* If we look again at our half-wave dipole, we see that it cannot evenly illuminate the full surface of the sphere, but concentrates most of its energy over a section of the sphere corresponding to the "fat" part of the doughnut radiation pattern. In the direction of the ends of the aerial, where zero radiation exists according to our radiation pattern, no illumination of our sphere takes place. Therefore, our dipole must have gain in the direction of maximum field strength. In fact, this gain is mathematically quoted as 2.15 dB over our isotropic antenna. It should be noted that our radiation pattern is three-dimensional, thus our dipole illuminates a belt around the centre of the sphere.

If we use an aerial of greater complexity and gain and investigate the results similarly, then a lesser portion of the sphere is illuminated by the signal from our new aerial being more concentrated, and a greater field strength exists over a smaller area of the sphere. This aerial has a gain "G" dB over our isotropic antenna or a gain of G-2.15 dB over our dipole. Now, if this aerial *could* also illuminate the remainder of the sphere to the original field strength, we would be getting something for nothing! Quite obviously the transmitter is not going to deliver any more power to the aerial so the extra field strength at the points of maximum gain can only be realised at the expense of reducing some areas of the sphere to less or no field strength at all. You can't get more out of the cake than first came out of the oven! To summarise, aerial gain in one or more directions can only be realised at the expense of other directions.

PRACTICAL CONSIDERATIONS

There are a number of ways of feeding a large variety of, more or less, complex aerials, but it is not intended to describe these; they have been described in literature by more able pens and designers than yours truly. The intention is to consider means of hanging these aerials up and bringing the feeders back into the shack, and, hopefully, pass on some practical hints that may save some time and trouble for the newer members on the amateur scene. If you like the look of a hanging bedspread or a simple dipole, or a thing with dog-legs all over the place, go for it! I will not comment on the performance, but hope to explain how to hang it up safely and connect it to the transceiver.

ERECTING AN AERIAL

There are a number of possible alternatives when it becomes necessary to elevate our new "U-Beaut" antenna sky-wards. If you live in VU-land or have access to a captive balloon of substantial dimensions, the problem is easily solved. Unfortunately, practitioners of the art of the Indian Rope Trick and balloons are few in this part of the world. In fact, the latter would raise the ire of local government bodies, except perhaps in the Simpson Desert. So, this leaves us with the more usual means of holding our aerial aloft.

Several things immediately spring to mind, such as the family homestead as one anchor point. Most suburban houses aren't quite high enough for the ideal, but can be quite effective if you don't intend to blast the birds off a DX stations antenna. Whether the local council sees eye-to-eye with you on this issue remains to be seen. Please don't quote me as an authority, you are on your own in this field as individual local councils have their own regulations.

Such fittings as television J-mounts, ridge-mounts, (and chimney fittings for those that aren't fortunate enough to live in the Sunshine State!), can assist you to engineer a quite effective system.

Having disposed of one end of our wire (tentatively) we have now to think of the other end. It seems pointless to run it down to a fence post (although this will often work surprisingly well), so just look around for a convenient tree. If one is found in approximately the right position and it is considerably bigger than a shrub, you're well on the way to success.

Trees house birds like magpies, their limbs break off at the most inconvenient times and they sway around in the wind. You take pot luck with the magpies and use your calculator to estimate if the particular branch will support the critical mass (yours, of course). The one that will concern us here is the fact that the wind plays "Rock-a-bye baby" with the end of the aerial. To cope with this well-known phenomenon, it becomes necessary to arrange a counter-weight method of support for the aerial. Continued straining and relief of the tension does not do the aerial any good. I don't think it would move the house at the other end, but something is going to give at the wrong time, such as when you are just into a rare bit of DX. So, don't forget that counter-weight, eh. Just tie a pulley securely to the tree and thread the halyard rope through the pulley and attach a counter-weight securely to maintain tension on the aerial.

GUYED MASTS

Some of us are gifted with a little more loot, or a larger desire to make our mark on the amateur scene than others, so we progress upwards toward the Ultimate Antenna System. There is no such animal as the National Debt wouldn't be able to purchase it, but there is no harm in trying! So the next rung up the ladder is one or two masts. They can be of either wooden or metal construction; there are points in favour of each.

White ants blunt their teeth on metal masts and they don't suffer from dry rot. On the negative side, they can and do have an effect on the radiation pattern and efficiency of the system. Guy wires should be broken up into non-resonant lengths by insulators, as indeed, should guy wires on wooden masts. If you are prepared for unpredictable effects, you can neglect the insulators; something will happen! A metal mast should not be used to suspend a vertical aerial, but is quite effective as a support for a ground plane or the centre of an inverted Vee aerial if supported from a short boom. If you use a wooden mast, please do not forget to seal it with an undercoat and a couple of coats of paint or varnish and renew these regularly. After all, the price of a decent length of timer is very high these days! Such publications as the ARRL and RSGB Handbooks give several designs for wooden masts.

If your heart is set on a metal mast, then there are several factors to take into account. There are a number of telescopic television masts available, but they have limitations from an amateurs point of view. They are very satisfactory for the purpose for which they are designed, but are not the ideal masts for the heavier duty we have in mind. However, in heights of nine, or perhaps 12 metres, they can be used with limitations. Their construction is very light and they are intended to operate with a relatively light load acting in compression and with a small wind-load acting horizontally. The individual sections of the mast are not nested very deeply into each other and need a large amount of guying to achieve any degree of rigidity. If you live in a region which doesn't suffer from cyclones or strong winds they can make quite a viable proposition. I have installed quite a number of these in Gladstone, Qld, with only one failure due to an eye-bolt fault. Mind you, these were used to support simple VHF aerials only.

If you intend making your own metal mast, you have several materials to choose from. Consider scaffolding or rigging aluminium alloy tubing if you can get it. It is costly, but a number of useful fittings are available to go with it. However, most of us will opt for the galvanised water-pipe type of construction. Whatever type of construction material is used, it is very desirable to use several sizes of pipe which will telescope one within the other. Start with three or four lengths of pipe, bury the top length of pipe approximately one-quarter of its length into the next larger size and securely pin or weld it in place. And so on, down the mast until you reach the bottom section. You can fit square guy wire plates which have been bored out to fit the pipe diameters you have selected for guying. Similar construction to television mast fittings are used. A large eye bolt, fitted some centimetres below the top of the mast and bolted through the mast to attach the pulley can also support the top guys.

Alternatively, a number of "U" pieces of heavy rod may be welded near the top of the mast to carry the guys and also the pulley. Do not forget to cover the welding in your construction with galvanised paint to prevent rust.

You can make your mast using the pipe couplings supplied with the pipe as joining fittings, but it will be at the expense of reduced strength overall. This can be improved by welding the couplings to each section of pipe, but it will still be a weaker structure than recommended except for heights of no more than two lengths of pipe.

GUYING METHODS

Masts are normally guyed for rigidity and to take the horizontal loads imposed by strain from the aerial, the wind load on the aerial and the mast itself. Over nine metres high, it is good practice to guy the mast from several levels. A tall mast, guyed from the top only, can reach a condition where a type of standing wave develops along the length of the mast in certain wind conditions. This can cause failure and collapse of the mast when this condition becomes excessive. This increases tension with your wife and upsets the operator when the mast gains unauthorised entry into the shack. The addition of a second, or even third set of guys at intermediate levels prevents this vibration from reaching alarming proportions, if indeed it becomes evident at all.

When you use galvanised thimbles to connect your guy wires to the mast fittings, be aware that these rust badly after a few years and will require checking and probable replacement; even more quickly in a salt or industrially corrosive area. An alternative is to make your own thimbles from split copper, or stainless steel tubing, but I doubt if it is worth the extra effort. Another approach is to use rope guys. This eliminates the need for insulators but there are problems with this method, too. Some ropes, such as nylon and polythene, stretch under tension. Polypropylene rope and terylene are quite good in this respect. Most ropes suffer from exposure to ultra-violet radiation in sunlight and eventually break down. Over the last few years this deficiency has been appreciated by the makers and a big improvement has been made in UV resistance. Do not overlook the fact that stranded galvanised wire will deteriorate with time also, particularly if the galvanised coating has been damaged, as by tools. Another "no-no" with wire guys is kinking the wire in the construction and erection of the guys. The same also applies for aerial wire. Regardless of material, all guy wires and halyards should be checked regularly and replaced when wear is apparent. It should be routine to replace ropes every couple of years. Because guys are made of galvanised wire does not mean they are immune to rust or corrosion and they should be replaced when such faults are evident.

At this time it is advisable to consider how many guys are to be used around the mast. Many masts are erected using three sets of guys ad are quite safe and effectively guyed. What I consider to be a better method is to use four sets of guys displaced 90 degrees around the mast. This uses more material, but makes for much easier and safer erection, particularly if you do not have much experience in this field. If two sets of guys are made up at right-angles to the lay of the mast and made fast to their anchors, they will represent the mast getting out of control laterally during the actual erection. This only leaves the pull from the front and the paying out of the rear guys to think about and is a much safer way to go.

GUY WIRE ANCHORS

The guy wires may be secured at the ground end by several methods. The guys may be anchored to "Star" pickets which have been driven well into the ground with the open end of the Y facing the direction of the mast, to offer the greatest resistance against being pulled out of the ground. If the load seems too great for one Star picket drive a second picket into the ground a few metres behind the first. The top of the first picket may then be wired to the bottom of the second, thus greatly increasing the load capacity of the system. If plenty of reasonable sized angle iron is available, it may be used in lieu of the Star pickets.

An improvement is to dig a hole in the ground at each anchor point. Make up a very large eye-bolt (of, say ½ inch diameter steel), for each anchor and bolt these through substantial steel plates. Place the steel structure in the hole and fill the hole with concrete. It should not be necessary to point out that the metal structure should be slanted in the direction of the mast with the metal plate at right angles to the direction of strain.

Fence posts can be called into use if you are sure they will carry the load successfully. Another method is to dig a fairly deep trench in the ground at right angles to the lay of the guy and bury a large log with a heavy eye- bolt secured through the log and slanted in the right direction. Alternatively, to the eye-bolt, a number of turns of galvanised wire can be used. The hole is filled in and the dirt firmly tamped down. The wire method is definitely not meant for long term use, as the wire will rust away fairly quickly.

The base of the mast can be supported by a wooden post approximately 4 by 3 inches (101 x 76 mm), or a steel pipe, or angle, or even channel section can be used instead. This post can be placed in a post hole and some of the spoil from the hole mixed with cement powder and a little water and the hole filled about one third full with the mix. This is then tamped down and the next third filled and tamped. Finally completely fill the hole and tamp. Do not forget to check that the post is plumb in each plane and water may not be necessary in the mix if the soil is moist. The mast is pivoted on a bolt fitted through a hole drilled in the post and another drilled a few centimetres from the bottom of the mast. Allow at least a week for the cement to cure before raising the mast.

A big improvement can be made by digging a fair sized hole in the ground and concreting a "tabernacle" in the hole. A tabernacle consists

of two posts parallel to each other and spaced to allow the mast enough clearance to pivot. A structure below ground level is attached to support the two posts, which may be of timber or steel. The tabernacle is fitted in place, trued up plumb, and the hole filled with concrete. Again, allow the concrete time to cure before attempting to raise the mast. This cement treatment has an added bonus in that it delays or prevents rot in the timber.

As before, the mast is mounted on a pivot pin or bolt through the whole structure. Remember that the only load on the base support of a guyed mast is the downward or compression load of the dead-weight of the mast structure and a small part of the tension load, due to the guy tension. When the mast is being raised or lowered, however, the mast imposes a considerable sideways strain in the opposite direction to the way the mast is laying. Mast bases made of concrete have the added advantage that they can be built up above the ground in a simple box form and thus clear the back lawn or whatever, which makes for a lot less "cuss" words when you or your wife, or even the harmonics do the mowing. It is a good idea to ensure that the anchors are placed so that the mower can be used all around them if possible.

ERECTING THE MAST

To raise the mast, assemble the mast laying it away from the base support. Insert the pivot pin or bolt through the base support and the bottom of the mast. Rig all guy wires and the aerial halyard and pulley while in this position. Make off the side guys for lateral support during erection.

If a length of pipe or substantial timber is stood upright at the base of the mast and lashed to the mast base, then several pieces of rope are tied from the top of this "jury" mast to the tip of the mast and to several intermediate points on the mast, then the mast may be hauled upright by pulling on another rope from the tip of the jury mast. This may be assisted by several "Indians" lifting from the tip of the mast and walking down the length of the mast until the load on the hauling rope is easily managed. If the back guys are fed through the eye-bolt at the rear anchor point, then these guys can be payed out so as to steady the mast during erection. This should be considered a potentially hazardous operation and treated as such. Hard hats and a wary eye on the progress of the erection are necessary and standing directly behind and under the rising mast are strict "no-nos" for obvious reasons.

The whole operation is one of simple and controlled use of the necessary force to raise the mast to the vertical, in theory at any rate. After passing through the 45 degree mark in the erection, the force required becomes much less and the pull may be slackened off and the jury mast itself manhandled until the mast is erect.

It is probably wise to insist that there be one, and one only, "Chief" and the rest of the crew be content to be "Indians" only. Otherwise confusion added to chaos createth a crash! Once the monster is in its rightful place, adjustment of the individual guys can be carried out until the mast is plumb from all directions, and then the guy wires made fast permanently. If turnbuckles are used (a wise move) they should be tightened firmly but not excessively and some excess guy wire threaded through one eye, then the threaded portion and lastly through the other eye and tied to make the turnbuckle safe.

When the mast is secured, another hole can be drilled through the supports and the masts and another bolt fed through and tightened for greater security. You may need an extension rod welded onto your drill bit to do this.

It then remains to remove the ropes from the jury mast. There will be no need to shin up the masts if these ropes were a continuous length and were wound around the mast 10 or 12 times to connect them in the first place. By playing maypoles and walking around the masts with the rope in the opposite direction to the way the rope is coiled, you will soon have the ropes down.

It goes without saying that the halyard rope should have been rigged and the pulley fitted and greased before the mast was raised. The best idea is to make the halyard rope a continuous loop as otherwise you will have a large amount of rope at the bottom of the mast to dispose of somehow. I don't mean cut it off either, as you will then be in "heap big trouble" when you want to raise or lower the aerial. If you make a loop of the halyard you can tie a finger knot in one side of the loop leaving a small loop tied round a galvanised thimble to attach the aerial tail.

The halyard is very easily made from the hollow woven rope which is so popular with water skiers. One end can be fed back inside the other for 30 centimetres or so and the outer section pulled tightly over the inner section. The rope will then pass through the pulley easily. If you prefer a more secure method, you only need feed the inner section back out again and then feed it back inside again a short distance further along the outer. To simplify feeding the inner section into the outer, it is a wise idea to heat the end of the rope with a match or cigarette lighter and mould it to a neat tapering end with the fingers. If your fingers are too soft and tender for this, I can guarantee they will be a lot tougher after all the preliminary work has been done!

Well, it is all in the cause of greater efficiency and, hopefully, more DX, so what more can you ask!

MODIFIED G5RV MULTIBAND DIPOLES

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The G5RV-type antenna is very widely used by many amateurs. It offers multiband operation from a single antenna. This is even more important with the new bands.

A new version was described in *Radio Communication* by ZS6BKW.

The newer breed of transceivers rely on the antenna feeder having a Standing Wave Ratio under 2 to 1. They also are all 50 ohm impedance. To ensure optimum operation the antenna must use 50 ohm feed with an SWR less than 2:1. To be truly multiband this must occur on a multiplicity of bands.

The original G5RV was an attempt at a multiband antenna. The antenna was useful, particularly with transceivers which could match to a range of impedances. Recent transceivers, without variable tuning to match the feeder impedance, need a better match.

The G5RV is shown in Figure 1, and a modified version by W5ANB is shown in Figure 2. The original G5RV is below 2:1 SWR on the bottom of 20 metres and on 12 metres. The W5ANB modification is under 2:1 SWR on the bottom of 40, 17 and the top of 10 metres.

A new version has been described by Brian Austin ZS6BKW, in *Radio Communication,* August 1985. This version comes in two models and offers improved feedline SWR performance.

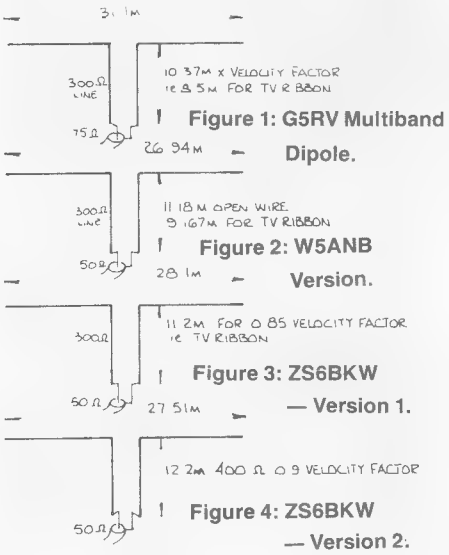

Figure 1: G5RV Multiband Dipole.

Figure 2: W5ANB Version.

Figure 3: ZS6BKW — Version 1.

Figure 4: ZS6BKW — Version 2.

Brian ZL6BKW, arrived at the designs by computer analysis of the lengths and impedances. He was thus able to optimise performance. He then carried out tests at various heights and also, using both straight and inverted Vee configurations.

Two versions of the basic antenna are shown in Figures 3 and 4.

The inverted Vee configuration resulted in a drop in frequency of the lowest SWR. This was from 0.6 percent to two percent.

The frequencies where SWR was less than 2:1 were measured by ZS6BKW:

ANTENNA	FREQUENCIES IN MHz				
G5RV Fig 1		14.000		24.890	
		—		—	
		14.180		24.990	
W5ANB Fig 2	7.000		18.068		29.150
	—		—		—
	7.100		18.168		29.800
ZS6BKW[1] Fig 3	7.000	14.000	18.068	24.890	28.400
	—	—	—	—	—
	7.100	14.340	18.168	24.910	29.300
ZS6BKW[2] Figure 4	7.000	14.050	18.068	24.890	28.600
	—	—	—	—	—
	7.100	14.340	18.168	24.990	29.200

Whilst the antenna will operate outside these ranges, an antenna tuning unit will be needed to reduce SWR to below 2:1.

The article in *Radio Communication,* contains extensive plots of SWR. The design approach is also explained in the article.

The G5RV articles in *Radio Communication* or the *RSGB Bulletin* as it was then known, appeared in July 1958 and in November 1966.

The ZS6BKW article, from which this *Try This* is derived, appeared in *Radio Communication* for August 1985.

USING TECH-200 FILM

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In the March 1987 issue of* Amateur Radio *(page 14), I introduced a method of making printed circuit boards using plastic film as a transfer medium[1]. Although the process outlined in the article can produce very good results, much better results will be obtained by using the film especially developed for the purpose.

AT THE TIME of writing this article, *Tech-200* film was not available in Australia but negotiations were in progress and, by the time you read this, a local agent should be able to supply this film[2].

Tech-200 is a very smooth plastic film having a long shelf-life and is capable of withstanding temperature of up to 160 degrees Celsius. With care, quality boards can be made using a similar procedure to that described in the previous article. Access to a good photocopier and a domestic smoothing-iron is all that is required.

The process involves photocopying the PCB pattern onto the film and then transferring it to the copper laminate using a hot iron. The transferred toner becomes the resist and the board can be etched in the usual way.

ARTWORK

Although the artwork from your popular monthly magazine may be used, it will most likely have to be reversed before transferring it to the laminate.

This can be done by placing an intermediate transparency upside-down in the photocopier and running a second copy. During this reversal process, the lines tend to become broader and may even merge on layouts having very closely spaced lines. With care however, an acceptable copy can generally be obtained.

Better results will be obtained if you are starting from scratch and produce your own artwork as a *component-side view* which does not require reversing. This is easier than you may think as suitable drafting material is readily available from most electronic suppliers and it is generally easier to produce a component-side view than a copper-side view anyway.

PHOTOCOPYING

A photocopier that heat-fuses a toner onto plain paper is suitable, although I have found that some absolutely refuse to heat-fuse the pattern onto *Tech-200* film. Instead of a nice hard image, a powdery facsimile results which is not suitable since the pattern will most certainly smudge when placed in contact with the laminate during the pattern transfer phase.

With this in mind, some experimentation will be necessary to gauge the settings most suitable for a particular photocopier. A good dark copy with a clear background and a hard image is required. When using *Tech-200,* the pattern may be reproduced on *either* side of the film.

Note that the final quality of the PCB depends largely on the quality of the photocopy used. Any small blemish caused by a dirty roller, should be carefully removed using a scalpel or sharp pocket knife before transferring the pattern to the laminate.

PATTERN TRANSFER

It is essential that the copper surface of the laminate is absolutely clean and dry before attempting to transfer the pattern. A suggested procedure is to thoroughly clean the board using a non-metallic scouring pad and then wash the surface with a PCB cleaning solvent. The board should then be handled with care to avoid further contamination.

The transfer process will require some practice to develop a satisfactory technique but this should be minimal if the steps outlined below are used as an initial guide.

1 Set the control knob on the smoothing iron to give a temperature of around 120 to 150 degrees Celsius. This was near the wool/rayon setting on my iron (sorry, the wife's iron) but this may vary considerably between individual appliances.
2 Cover the cleaned laminate with a lint free cotton cloth such as a well-worn handkerchief and warm the entire board with the iron. Remove the handkerchief.
3 Carefully place the film (toner side down) onto the warm laminate and cover with the handkerchief. Apply the iron with a firm pressure and carefully smooth the *entire* surface until the temperature of the board is close to that of the iron. This takes around 30 seconds or so.
Particular attention should be paid to the edges of the pattern being transferred to ensure it is heated sufficiently.
If the plastic film tends to slip during ironing, it is suggested that a small amount of double-sided "sticky-tape" be used to hold the film onto the laminate.
4 With *Tech-200 film,* it is essential that the film is removed when *cold.* In fact, once a reliable technique has been developed and you are sure that the toner has adhered to the laminate, the plastic film need not be removed until just prior to etching.
Start from one corner and carefully peel the film from the board. If the pattern has not fully adhered, let the film return to its original position and repeat the transfer heating process. Any small imperfections in the transferred pattern can be touched up using a resist pen before etching.
Incidentally, if the pattern transfers to the handkerchief instead of the laminate, you had the plastic film upside-down!

ETCHING

There is no restriction on the etching agent and your favourite solution should be satisfactory. A short etching time should be aimed for to reduce the problem of under-cutting.

Once etched, the board can be rinsed in water and the remaining resist removed using a solvent. Finally, the board can be sprayed with a PCB lacquer.

FINALE

If the *Tech-200* film is used correctly, all of the toner should come away from the film and be deposited as resist. This means that provided that the film has not stretched too much during the pattern transfer stage, the *Tech-200* film should be able to be used more than once.

If it is desired to make just one small board, a small piece of *Tech- 200* can be attached to a sheet of copy paper using double-sided 'sticky-tape' and run through the photocopier.

NOTES

1 No Fuss Printed Circuit Boards — *Amateur Radio,* March 1987, page 14.
2 South East Electronics, Odeon Plaza, Mount Gambier, SA. 5290.

REFERENCES

1 No Fuss Printed Circuit Boards — *Amateur Radio,* March 1987, page 14.
2 Making Printed Circuit Boards — *Radio and ELectronics World,* November 1985.
3 *TECH-200 Technical Bulletin* — The Meadowlake Corp.
4 *Printed Circuit Handbook* — C F Coombs.

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Tech-200 PCB Film is now available from South East Electronics, Odeon Plaza, Mount Gambier, SA. 5290. Please contact them for further information about this product.

SIMPLE SPEECH PROCESSOR

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This processor uses two integrated circuit packages and requires little effort to construct.

A SPEECH PROCESSOR is a device which modifies the speech waveform, so that components which convey most of the speech intelligence make better use of the modulation capabilities of the transmitter.

In the device described, two processes are involved. The first is to shape the frequency response so that the gain increases with frequency increase over the speech range. Much of the speech intelligence is provided by the high frequency components which are lower in level than the low frequency components. The corrected response increases the level of the high frequency components so that they represent a higher proportion of the average speech power to provide a typical crystal microphone type response. Any old

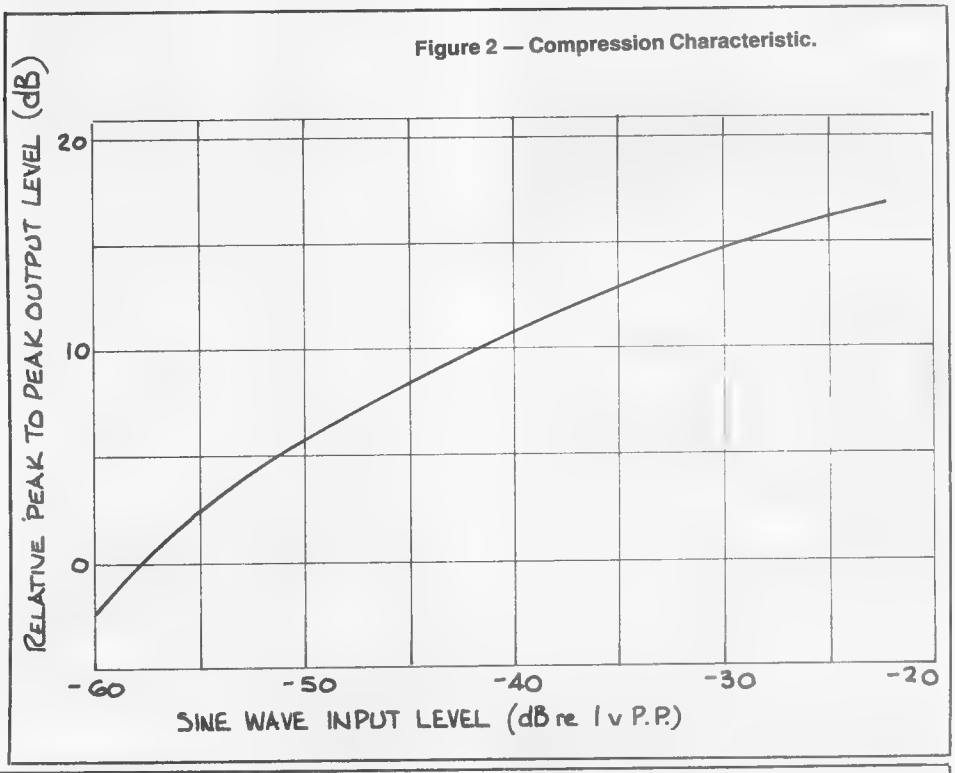

Figure 2 — Compression Characteristic.

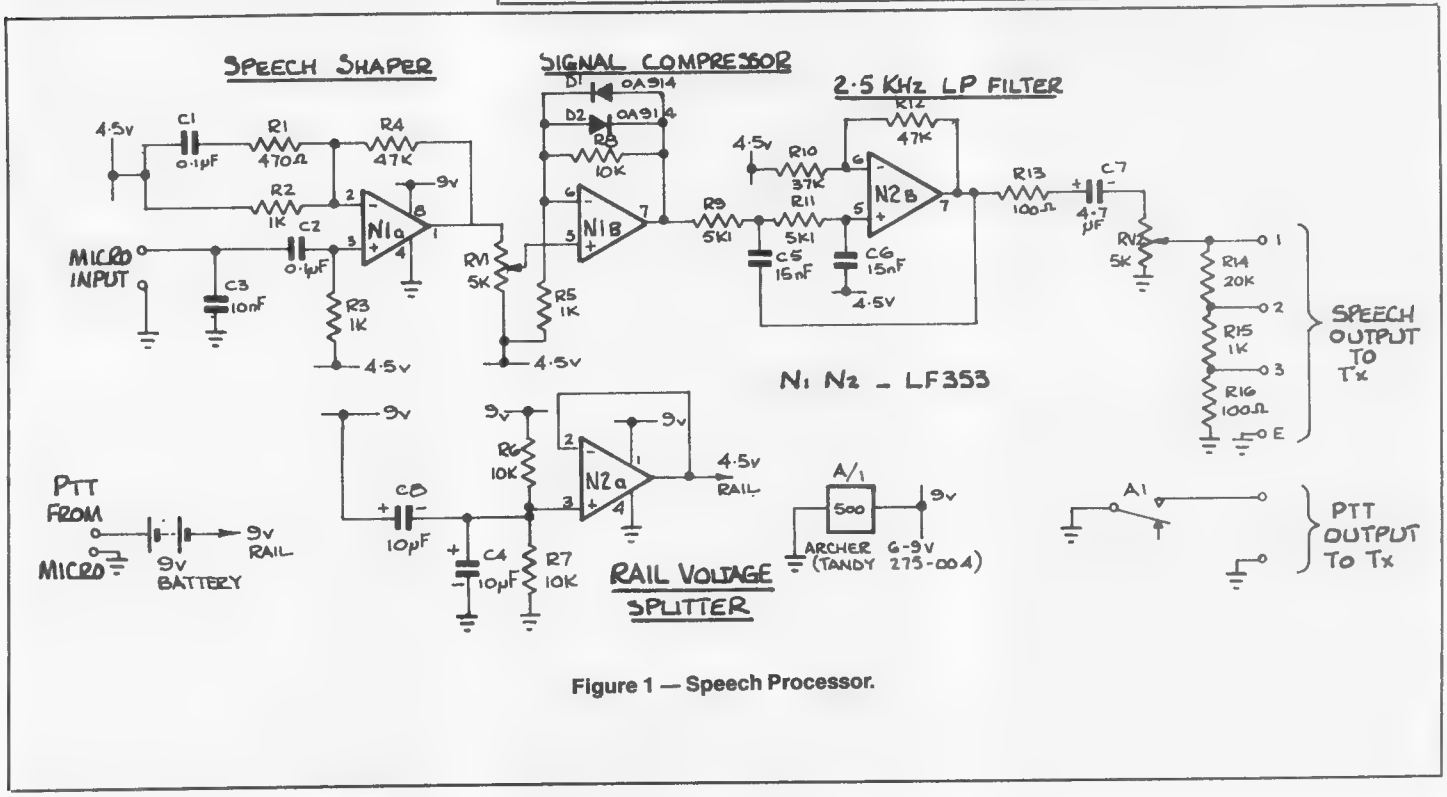

Figure 1 — Speech Processor.

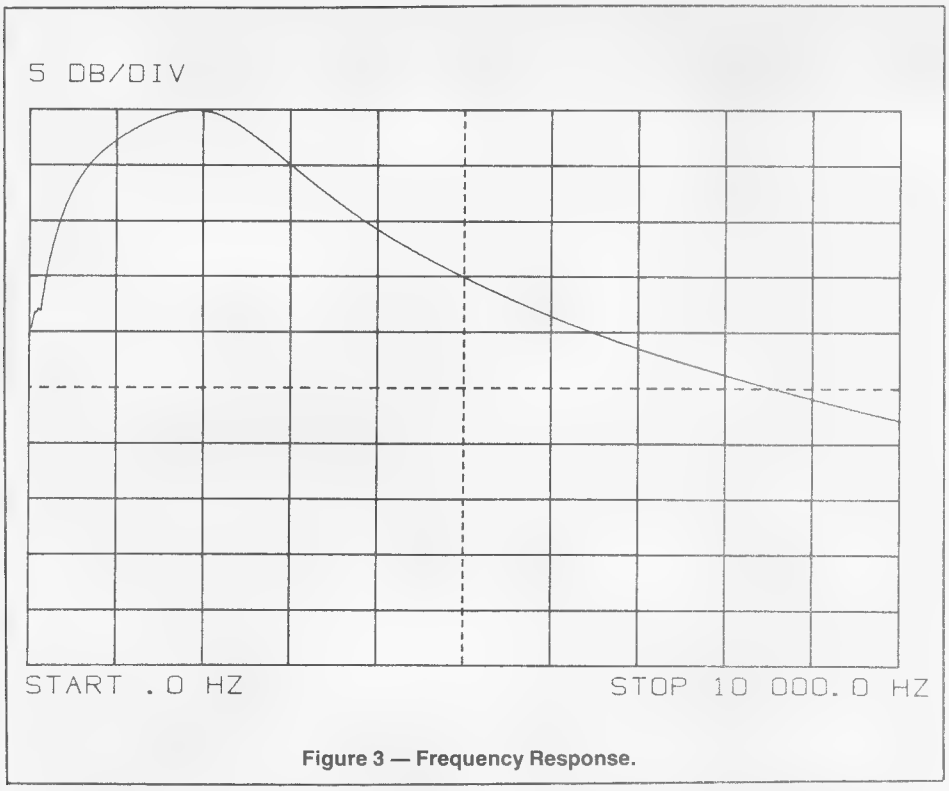

Figure 3 — Frequency Response.

time radio amateur will tell you that such response is better to copy in the presence of QRM or noise.

The second process is to compress the peaks of speech so that the average level of speech and hence the average modulation level, is increased. The process causes come degradation of speech quality and the amount of compression is governed by how much quality one is prepared to sacrifice.

OPERATION

The circuit of the processor is shown in Figure 1. Amplifier N1-A provides the frequency response correction and raises the level sufficient to drive the speech compressor. The frequency sensitive networks are C2, R3, and C1, R1, R2.

Amplifier N1-B provides signal compression. At low levels the gain is 11, fixed by the ratio of (R5 + R8) to R5. As the instantaneous signal voltage is increased, the diodes D1 and D2 conduct and shunt R8 with a resistance value which is roughly an inverse exponential function of the instantaneous voltage across N1-B output. Decreased resistance across R8 causes decreased gain of the stage and hence compression of the signal waveform. Potentiometer RV1 controls the degree of compression and is set to suit the level amplified from the microphone used. Figure 2 shows the compression characteristic; ie relative peak to peak output level as a function of sine wave input. Plotted data is for RV1 set at maximum.

Since the output waveform is distorted, harmonics are generated and higher orders of these must be reduced to prevent them generating undesirable sideband components in the modulation process. This function is carried out by N2-B, connected as a second order Chebychev low pass filter with a cut off frequency of 2.5 kHz. Figure 3 illustrates the overall frequency response of the speech processor. The falling response above 2 kHz is due to the filter. Below 2 kHz, the response falls due to the shaping by N1-A.

OPERATIONAL AMPLIFIERS

Dual JFET operational amplifiers type LF353 were selected because they use the small eight pin DIL package but there is no reason why the dual ua747 could not also be used or perhaps the quad LM324. The only problem with the quad package is the difficulty in mounting the large number of R and C components all around the one package.

DC SUPPLY

The unit, as constructed, is powered from a small nine volt battery. The battery is connected via the microphone PTT circuit so that the battery only supplies current while transmitting. The PTT is transferred to the transmitter via relay A. (If the processor were fitted permanently in the transmitter cabinet, the transmitter power supply could be used and this relay circuit would not be needed). A half voltage power rail is provided for the processing amplifiers by source follower stage N2-A.

MECHANICAL

The unit, as originally assembled, is hard wired on matrix board, the layout of which is shown in Figure 4. The board, complete with battery, is mounted in a 104 x 60 x 46 mm Dick Smith aluminium box.

The layout is not critical, but to guard against the possibility of RF feedback from the transmitter back into the microphone circuit, shielding is made continuous right through from the microphone, via the processor box, to the transmitter and earthed only in one place at the transmitter end.

PRE-SET ADJUSTMENT

The degree of compression is set by RV1 to suit the microphone output level. One way to observe the compression is to monitor the levels at pin 5 and pin 7 of N1-B with a dual trace CRO. The sensitivity of the CRO is set so that the input from pin 5 is 10 times that from pin 7. At very low speech levels, the displayed amplitude of the two waveforms should be similar. As the speech level is increased, the waveform at pin 7 should compress as compared to that at pin 5.

A more objective test is to record speech on a tape recorder for different settings of RV1 and play back the result. As the listener, it is then up to the individual to decide how much distortion is tolerable and whether a point has been reached where intelligibility is being impaired rather than being improved.

Output taps 1, 2, and 3, and RV2 provide for a wide range of output levels. For the usual transmitter input, designed for a moving coil microphone, tap 3 should be used. If it is necessary to feed one of those old transmitters with input designed for a carbon microphone, tap 1 is more suitable.

In conclusion, the old warning about using speech processing on SSB transmitters is given. The processor raises the average level of power in the speech and hence the average power dissipation in the transmitter power amplifier stage. If the PA stage is designed to the limit, on the basis of normal speech, indiscreet use of the processor could exceed the PA rating. There should be no problem with FM or straight AM.

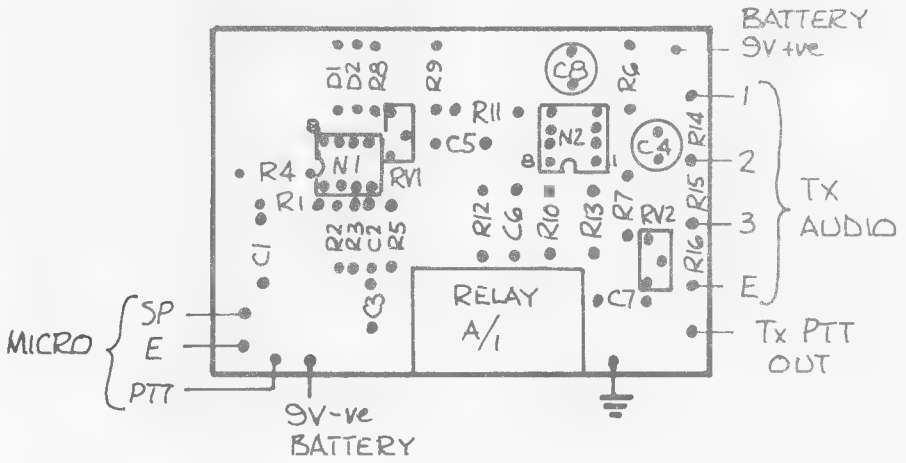

Figure 4 — Card Layout.

THAT UBIQUITOUS 2π

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The Inductive Reactance of a coil is:
$2\pi FL$ ohms.

The Capacitive Reactance of a capacitor:

$$X_c = \frac{1}{2\pi fC} \quad \text{(in ohms).}$$

where f is frequency (Hertz)
C is capacitance (Farads).

The resonant frequency of a circuit:

$$f_r = \frac{1}{2\pi\sqrt{LC}}$$

where L is Inductance (Henry)
C is capacitance (Farads)

and so it continues.

Many of our examination candidates can quote these expressions, and substitute data in them to achieve a result. However, many of them, no doubt, sometimes wonder why the ratio of the radius of a circle to its circumference appears so often in formulae dealing with electrical phenomena.

The following may be helpful to some candidates when confronted with questions involving 2π.

Perhaps the first step is to become familiar with the concept of angles expressed in radians instead of the familiar degrees. By definition, one radian is the angle subtended at the centre of a circle by an arc on the circumference equal in length to the radius.

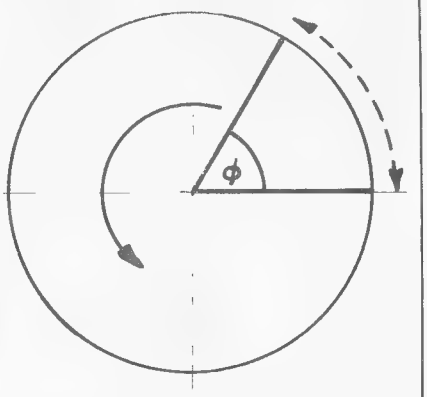

Figure 1.

$$Q = \frac{\text{arc length}}{\text{radius}}$$

(Note 1 radian = 57° 17.74' 57.29°).

Note that it is the arc of the circle, not the chord, which is equal in length to the radius. In other words, if we lay a length of string along the circumference equal in length to the radius.

Referring to Figure 1, we now imagine the radius with the arrowhead free to revolve about the centre in the direction shown. Since, in making one revolution, the arrowhead traverses the circumference, it must cover 2π times the radius in returning to its starting point. The angular distance covered is therefore 2π radians.

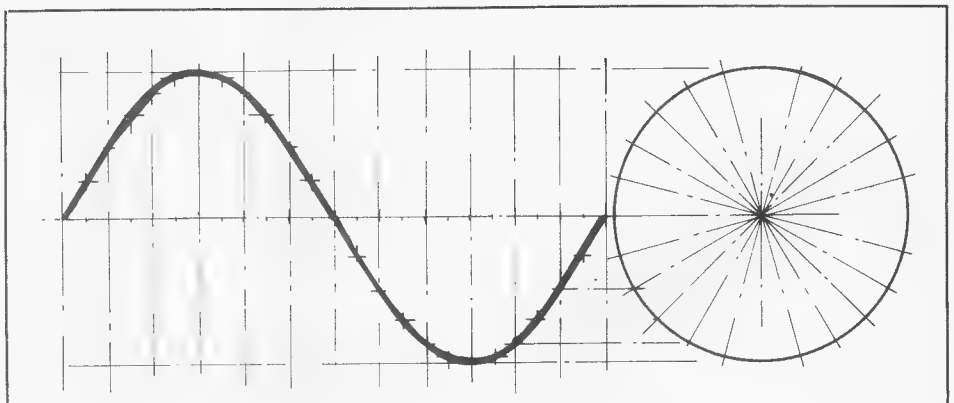

Figure 2: Redrawn Sine Wave.

Well, so what? How does this relate to resonant frequencies, etc? Good question!

Well, taking a horizontal diameter as reference, let us plot the position of the revolving vector (called a radius vector) against time. The result? A sine curve, since the ordinates of the curve at any instant are equal to the radius multiplied by the sine ratio of the angle between the horizontal and the radius at that instant.

So far so good, but we still have to relate this to electrical formulae. This involves relating the angle ϕ to some electrical equivalent.

The next step is to consider the radius vector revolving continuously. Since it sweeps 2π radians in one revolution, if it revolves N times per second, it sweeps out $2\pi N$ radians per second. The total angle swept out in any given number of seconds is therefore given by 2π times the number of revolutions per second times the number of seconds. This gives the familiar $2\pi FT$, which we now see as an angle.

Since one revolution corresponds to one cycle of a sine wave, and the amplitude of the sine wave is radius times sine ϕ, at any instant, we can now apply this information if we consider a voltage or current of sine waveform.

We can call our radius vector Vmax or Imax, and calculate the instantaneous value at any given instant.

As an example, let us take a sine wave voltage of maximum value 10 volts and frequency seven megahertz. What is its value after one sixth of a second?

We may write $v = V_{max} \sin 2\pi FT$, where v is the instantaneous voltage. This becomes

$$v = 10 \sin (7 * 10^6 * 2\pi * 1/6)$$

Looks formidable, but it is really quite simple. The

$$\frac{2\pi \times 7 \times 10^6}{6}$$

is the number of radians swept out in one sixth of a second. Since 2π radians = one revolution, the number of revolutions is

$$\frac{7 \times 10^6}{6}$$

Dividing the $7*10^6$ by 6 (a pocket calculator is handy), we obtain 116 666.66. . . . The 116 666 represents complete revolutions, which would only return the radius vector to its starting point. We need only take notice of the 0.66. . . which, as a fraction is two-thirds. Reverting to degrees, two-thirds of 360 degrees is 240 degrees. So the instantaneous voltage is

$$10 \sin 240 \text{ volts},$$
$$= 10 \times (-0.866)$$
$$= -8.66$$

We have now established the significance of 2π in an electrical context. Now for inductive reactance.

The back EMF developed in a coil in which a current is flowing may be written as minus L di/dt, where L is the coil inductance, and di/dt is the rate of change of current. The minus sign indicates that the back EMF is 180 degrees out of phase with the applied voltage.

Writing $E = -L\ di/dt$, if i is a sine wave current, we can write

$$E = -L \frac{d}{dt} (i \sin 2\pi FT).$$

We will accept the result of differentiating this expression with respect to time, which gives

$$E = -L (2\pi Fi \cos 2\pi FT).$$

Dividing both sides by

$$-i \cos 2\pi FT,$$

we have

$$\frac{-E}{i \cos 2\pi FT} = 2\pi FL.$$

This is of the form of E/I, which by Ohm's Law is an impedance. $2\pi FL$ is therefore an impedance which, in this case is defined as inductive reactance.

In the same manner, the capacitive reactance of a capacitor may be obtained.

We write

$$V = Q/C$$

where Q is the charge on a capacitor, V is the instantaneous voltage, and C is the capacitance. Since current is the rate of change of charge, we can differentiate both sides of the above expression with respect to time.

If the voltage is of sine waveform, we can write:

$$\frac{d}{dt}(V_{max} \sin 2\pi FT) = \frac{I}{C}\frac{dq}{dt}$$

Since

$$i = \frac{dq}{dt}$$

then

$$\frac{d}{dt}(V_{max} \sin 2\pi FT) = \frac{i}{C}$$

The result of differentiating this is:

$$V * 2\pi F * \cos 2\pi FT = \frac{1}{C} i$$

Dividing both sides by $2\pi F$

$$V \cos 2\pi FT = \frac{1}{2\pi FC} i$$

Dividing both sides by i gives

$$\frac{V \cos 2\pi FT}{i} = \frac{1}{2\pi FC}$$

Again, this is of form E/I which in this case is defined as capacitive reactance.

In both cases, it should be noted that the expressions are strictly true only if currents and voltages are of sine (or cosine) waveform. Now for resonant frequency.

This is defined as occurring when inductive and capacitive reactances are equal.

$$2\pi FL = \frac{1}{2\pi FC}$$

Cross multiplying, $4\pi^2F^2LC = 1$

$$F^2 \frac{1}{4\pi^2LC}$$

And taking square roots

$$F = \frac{1}{2\pi\sqrt{LC}}$$

Since $2\pi F$ appears so often in calculations, it is often shortened to the Greek letter omega, which in lower case is ω. So, if you see an expression

$$i = I \cos\omega t,$$

you know it represents the value at any instant of a current of maximum value. I multiplied by the cosine of the angle $2\pi FT$.

Thought for the Month

Beware of the man who slaps you on the back — he may be trying to make you cough up something.

MARKINGS

A NEW VHS TAPE marking technology has emerged from Japan called "CTL" which allows you to easily mark and find dozens of points on a tape.

An indexing track will be built into most VHS tapes for use with CTL equipped video cassette recorders.

WILLIS AIR-WOUND INDUCTANCES

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1-16	½"	3"	16	5.50	21	$2.12
2-08	⅝"	3"	8	2.70	19	$2.50
2-16	⅝"	3"	16	8.00	21	$2.50
3-08	¾"	3"	8	2.90	19	$3.05
3-16	¾"	3"	16	10.90	21	$3.05
4-08	1"	3"	8	4.80	19	$3.38
4-16	1"	3"	16	19.90	21	$3 38
5-08	1¼"	4"	8	9 40	18	$3.74
5-16	1¼"	4"	16	37.50	21	$3 74
8-04/4	2"	4"	8	—	18	$5.45
8-10/4	2"	4"	10	32.25	18	$5.45
8-12/4	2"	4"	12	—	19	$5.95
8-16/4	2"	4"	16	83.50	19	$5.95
8-08/7	2"	7"	8	—	18	$9.45
8-10/7	2"	7"	10	60.80	18	$9.45
8-12/7	2"	7"	12	—	19	$9.95
8-16/7	2"	7"	16	157.75	19	$9 95

WILLIS Air-Wound Inductances are a high quality product manufactured to the requirements of professionals in the electronic field.

The coils listed above are classed as *'Bulk Inductance'* and are intended to be pruned for individual requirements. Complete coils can be used of course, if the total inductance is the value required.

The inductance values shown are approximate allowing for any variations in wire gauge and other small manufacturing variables.

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AR86/1

CHESS AND AMATEUR RADIO

CARI — CHESS & AMATEUR RADIO INTERNATIONAL

Star Trek Captain James Kirk's famous line, ". . .to boldly go where none have gone before" sums up the way we felt about establishing an international organisation of chess-playing radio amateurs.

You see, several past groups had tried to organise, only in the US, but at this time only informal groups remain, and they come and go. Although the jury is still out on CARI after five years of dedicated effort by many of its members, and although we have an active Oceania chapter, the next few years will tell because that's when sunspot cycle 22 moves in for our benefit.

CARI was formed in 1982 following my article in *CQ Magazine* (Mat 1982) which included a cover photo of my son Jim WA2JNN, in radio-chess with Mike Sakarias KL7KE, in Alaska. That article brought in several joiners including our first VK, Kevin Moore VK3ASM.

Previously, one might say the real spark to CARI's takeoff had been my letter to the editor of *Chess Life* journal of the US Chess Federation. I had written to ask if any of their radio amateur members might sched Jim for radio-chess, as he was having a terribly difficult time finding chess players on the bands. When that letter was published, many wrote to ask that we organise them.

And so we did, starting something. I had no idea what would be its logical conclusion, but we've had a lot of fun in the process, particularly when our members set up matches with children who like chess, letting them play other children across the country. Or, when the band conditions were good, our own version of America's Cup, Chess Version. (We've had two such already).

Or, our letter in Russian to Box 88, Moscow, asking if they'd like to meet us on the air for radio-chess. Why not? After all, not everyone in Russia drinks vodka. But chess? You bet. Still, they responded (a milestone in itself) with a "nyet," although the tear stains on the letter suggested a defector or two might any day appear on our doorstep asking how to join CARI.

And we've helped Australian amateurs a bit because up until CARI there had been a VK restraint against radio chess, perhaps due to some outlandish notion of its "secret ciphers." A letter to ARRL President, Dave Sumner K1ZZ, resulted in a letter supporting WIA in negotiations with DOC. This soon resulted in recognition of the impractical nature of such restrictions and from that point on chess has been blessed and approved for VKers.

Whether you play chess or not, we think you might agree there's something to this CARI thing that might prompt you into joining now, while we are on the very upswing of an exciting cycle. For CARI information write to: Craig McMillan VK3CRA, 5 Sunview Court, Dingley, Vic. 3172. Please include an SASE.

—Contributed by Vince Luciani K2VJ, CARI Founder/President

THE STAR HF RESONANCE INDICATOR

Bill McLeod VK3MI
42 Capon Street, Chadstone, Vic. 3148

The versatility of the Dip Oscillator is well-known, but, while it is essential for easy application and it's wide frequency coverage, there are some shortcomings.

Even used with a frequency counter, there is always the uncertainty of the "pulling" effect and of maintaining constant coupling. An uncertainty of five percent is enough for a quarter wave HF transmission line to fall outside event the 80 metre band!

The HF Noise Bridge is becoming more common. But it is after all a voltage operated device. It is calibrated and compensated for 50 ohms or 100 ohms. Lack of developed voltage across loads of less than 10 ohms coupled with the doubtful end resistance of the calibrated potentiometer results in a broad indefinite dip as the unknown sample approaches zero. For transmission line tests, do *not* take the advice of most texts viz *set the dial to zero and tune the receiver for the best dip.* Rather, measure a 10 ohm non-reactive build out resistor at the approximate frequency. Then leave the R and C dials set and connect a quarter wavelength stub in ***series*** with the resistor before adjusting the receiver for dip at resonance. A sharp null should be available.

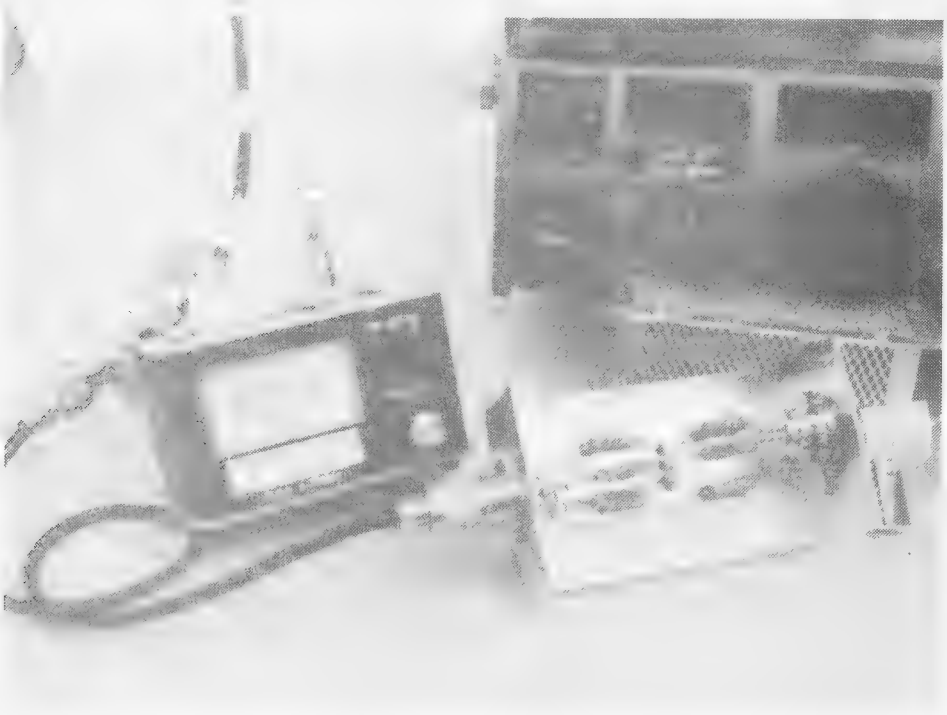
When close in, the R dial on the bridge can be readjusted slightly but *do not touch* C. As 5 pF of parallel reactance can mean 100 kHz at 3.600 MHz there is little margin for error when a resistive result is required at mid band!

This procedure can produce very good results but there is another way using a toroid transformer-type SWR meter as an indicator. These instruments compare the phase and amplitude of the voltage and current indicating sections. Like the Noise Bridge, they are calibrated and compensated for 50 ohm or 75 ohm transmission lines. Below 10 ohms the current meter section still indicates but the volt meter has starved while the opposite effect occurs over 250 ohms where the voltage is indicated, but there is insufficient current to affect the reading.

These characteristics can be used as an indicator for transmission line tests using suitable comparison terminations and a buffer pad for a power signal generator which can be the station VFO, a low power driver stage, or a QRP transmitter.

A 6 dB Attenuation Pad is normally used to reduce the voltage and current each to half the input value for a 50 ohm termination; ie it reduces the power to a quarter. When terminated by a non-reactive 50 ohm resistor it can become a dummy load. More importantly it also has the property of only changing from 30 ohms to 84 ohms at the input port when the output is either shorted or left open. Values well within the 2:1 capability of most solid state equipment designed for 50 ohms.

It is therefore an essential item to buffer equipment during initial tune ups or for antenna and transmission line testing. Also it is ideal to allow the use of 5 ohms and 330 ohms termination in tests using the SWR meter for a dip indicator as it tends toward a current limited source when the load approaches zero and as a constant voltage device for high impedance loads.



Power handling capacity of available non-reactive resistors is a difficulty but the metal oxide type are obtainable in two watt rating. So a pad capable of absorbing 10 watts of RF power with the output port open circuit can be built using the Tee-configuration as in Figure 1.

Then, for testing series tank circuits and quarter wavelength stubs, inverting sections, to an open circuit at the remote end and also half wavelength lines, repeating sections, to a short. The output port of the 6 dB pad can feed via a Tee-connector to both a 5 ohm termination, two ten ohm resistors in parallel, and the test section in parallel as in Figure 2. The SWR meter in the resistive leg does ***not*** indicate SWR as insufficient voltage is developed across the load for that section to materially affect the reading. However, in-phase current to the resistive termination shows a dip when it is robbed by the line section as it falls to it's lowest value at resonance.

Disconnect the line section for the dip to restore to maximum reading proving that it is not due to other circuitry. Then substitute a non- reactive resistor 1 ohm to 10 ohms usually for the same dip reading. This value is the equivalent series loss of the test section and for example RG58 cable will be about 2.5 ohms for a quarter wavelength section at 3.600 MHz. Increasing in resistance for poor quality or damaged cable. Expressed as a percentage of the nominal cable impedance this loss can be transferred to a set of dB tables to convert to the cable specification figures in dB per 100 feet. For other than USA specifications make that into metres.

Sections of cable can be cut five percent longer using the Dip Oscillator method. Then the percentage error checked using the Star — cut off two- thirds of this only then re-check and, on cutting two-thirds of this new error, the result should be very close indeed.

The similar arrangement in Figure 3 can be used for higher impedances from 200 ohms to 1000 ohms, where a bridge with a suitable range is unavailable. The 6 dB pad feeds via a 330 ohm series resistor to the Tee- fitting where the SWR meter indicates voltage across a single wire feeder to that mystery long wire. The ANT port of the SWR meter is left open so no through current affects the reading and the indicated voltage peaks at the resonant points as the frequency is varied across the band.

However this is of less practical value and accuracy than the low impedance case as the test sample is usually subject to other influences. For example, a half wavelength must include the distance to effective earth from the Tee- coupler and the capacity to earth from the remote end. Therefore, with the near end at an earth stake and the remote at say five metres high the section must be adjusted if it is subsequently raised to 10 metres horizontally. Of course, the same restrictions apply to Bridge and other methods of measurement and general practice requires these measurements to be made in normal operating position via a repeating section or half wavelength of cable which itself can be accurately cut by the previous low impedance method.

The frequency accuracy of this dip method can be somewhat better than one percent, of

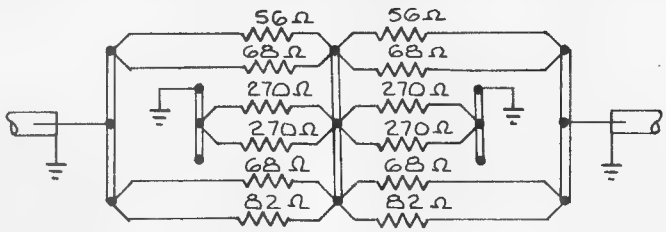


Figure 1: Attenuator Pad 6 dB 50 ohms.
Series Resistors: Each two watt Metal Oxide.
1 x 56 ohms.
2 x 68 ohms.
1 x 82 ohms.

Shunt Resistors: Each two watt Metal Oxide.
4 x 270 ohms.

Common Bars: Multiblock inserts each drilled three ways transversely.

the same order as some commercial bridges, with a reasonable frequency readout from the VFO. After all this Star or Tee arrangement comparing the current fed to two branches from a current limited source is the inverse arrangement of the Delta or Bridge circuit which compares the voltages developed across two impedances.

A complete instrument along these lines can be constructed. However, for occasional use the station SWR meter provides a readily available indicator while the 6 dB pad limits and protects the source as well as it's other uses.

REFERENCES

RF Measurement of R and J *Amateur Radio*, July 1968

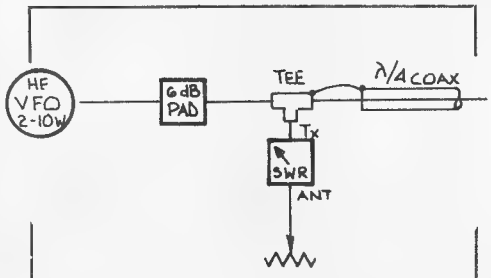


Figure 2: HF Resonance Indicator 1-20 ohms.

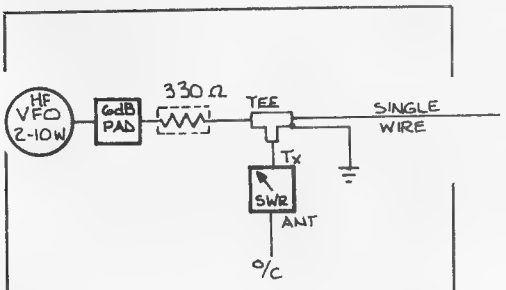


Figure 3: HF Resonance Indicator 200-1000 ohms.

Try This!

E C Brockbank VK2EZB
115 Myall Road, Cardiff, NSW. 2285

VHF-UHF VEE ANTENNA

Many years ago, the Tee Vee antenna was a popular antenna around the suburbs.

The theory of such Vee antennas is not new and the gain to be expected can be found within the *ARRL Handbook:* Resonant Long Wires. The amazing thing is that it is simple to make, costs a trifle and works well. It can be constructed from continuous heavy copper wire, aluminum wire or tubing.

The good book says that the impedance is 300 ohms, but 75 ohm coaxial cable appears to cause little problem. Surprisingly it will work on high band VHF and across the UHF band at distance. At UHF, each element is a full wavelength long and phasing is one half wavelength. At VHF, each side appears to combine to create a halfwave dipole length.

Both sections are insulated from each other and fed at 'X'. A suitable support for the two sections would be a plastic, electrical T junction box. Place a washer to the inside of the T junction to support the rivet and then pop rivet each section. If using aluminum tubing, lugs may be pop riveted at point 'X' to accept the feedline.

If you are sceptical that the television antenna will work at all, then make up a mock model. That aluminum wire used for television harnesses, should do the trick.

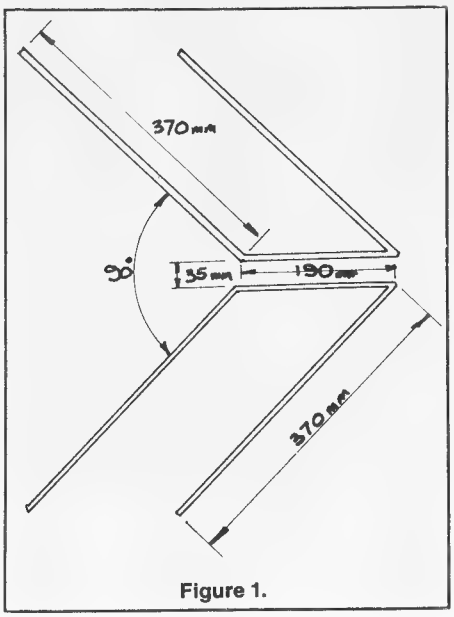


Figure 1.

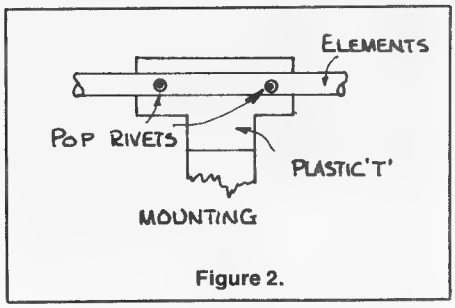


Figure 2.

REMEMBERING AROUND

* * One More World War Two Piece of Gear * *

THE TRANSMITTER TYPE 133

John Stone VK4NZ
25 Scrub Road, Coolum Beach, Qld. 4573

Inspecting the perforated tape. Control Panel with the AMR100 Receiver is in the background.

Joe unknowingly prompted the completion of an article which was drafted quite some time ago!

Reading Joe Baker's *Listening Around* (which I do with great interest) brings back my own memories of Morotai Island, where I spent 18 months of young life, in 1945/46, providing TLC (Tender Loving Care) to a flock of No 133 transmitters.

It is surprising that I did not meet with Joe — and I may well have done so — as our camp was right next door to the Boomerang (open-air) Picture Theatre, at Advance Land Headquarters (Landops) mentioned by him. I do well remember that 9AD, Radio Morotai, played quite a few records which were, at that time, "persona non grata" back in Australia, such as *Rum and Coca Cola* and Max Miller's pert numbers (*Mary Ann — Let's do our Lovin on the Five Year Plan*).

However, I do not remember having seen the 133 Set featured in AR, and Joe has unknowingly prompted me to complete an article thereon which I drafted quite some time ago.

The 133 Transmitter was a 300 watt, mainly CW transmitter produced by AWA, presumably to Defence Department specifications, and was designed along, what I would expect to be, good normal civilian practices.

Glueing the Undulator Inked Morse Tapes onto sheets prior to reading.

HF 300 watt portable — 1945-style. Type 133 Sets mounted in jeeps.

Original 'Landops' transmitter shack at Morotai — a leaky marquee with two 25 kVA alternators (Ford Mercury) outside.

It covered 1.5 to 12 MHz, using 807 Crystal and VFO Oscillators, to 807 Buffers, 807 Driver to push-pull 813s Output with 1800 volts on the plates. Provision was made for grid modulation speech or tone (MCW), and for either local or remote control.

Construction in six roll-out sub-units simplified service operations. My one lament was the fibre insulation in the finals, rather than ceramic — there being no suitable plastics for the job in those days. The RF and the humidity of the tropics had an unfortunate rheumatic effect, and after 18 months on Morotai the preamplifier tuning shafts and associated equipment were assuming the likeness of mushroom stalks, upsetting tuning operations no end.

Otherwise, we had very little trouble from these rugged work-horses. Not like the AT13, 500 watt RAAF set, we had at one stage (see AR, January 1987, p7). It developed a short to earth from the transformer filament winding feeding the 866 mercury vapour rectifier filaments, which, of course, were at "X" hundred volts above earth. No spare transformer was available so we jacked the faulty one up on insulating pillars and suitably labelled it "DANGER HI VOLTS." I hope that the label never came off with disastrous results to later users! I wonder if the initial fault was caused by one of Ted Roberts' mice (AR reference above)!

At one stage we had 13 133 sets in the "shack" working forward to Borneo (various points) and the Philippines, and later, when the 10 kW SWB8s of High Speed Wireless Section had gone home, working back to Melbourne. All using 600 ohm line to Delta matched dipoles, hung on pipe section-type masts at 70 feet (21 metres).

One photograph depicts a 133 set detachment setting up for portable use. Each detachment consisted of one 133 set, 5 kVA alternator (Howling Howard, or if lucky, a Ford Ten power unit), two receivers and about eight people (bods) of various "trades", all were transported in two jeeps and trailers, together with the equipment.

I fortunately did not have to operate our sets "portable" however, I would guess that many readers did. I can also imagine the trauma of transporting the "Little Brother" of the 133 set, the 100 watt AT5/AR8 (112 set) pedestrian/portable in

Papua New Guinea, together with its hungry genemotor and associated batteries and charger.

Should anyone be interested, I have the workshop manual of the 133 set, also copious notes received at a Sydney course devoted largely to these sets.

As an associated point of interest, a couple of years ago a photograph appeared in AR of an oval mast section, with a query as to its origin. It appeared very similar to the 90 foot (27 metres) portable telescopic masts used on Morotai to carry the rhombics for the SWB8s (10 kW), which were being used on the Melbourne link, High Speed Morse to Creed Perforator Heads and Teleprinter when conditions were good enough. The mast junction shown was at 30 feet (9 metres), tapering away to the ground, and up to the remaining 60 feet (18 metres).

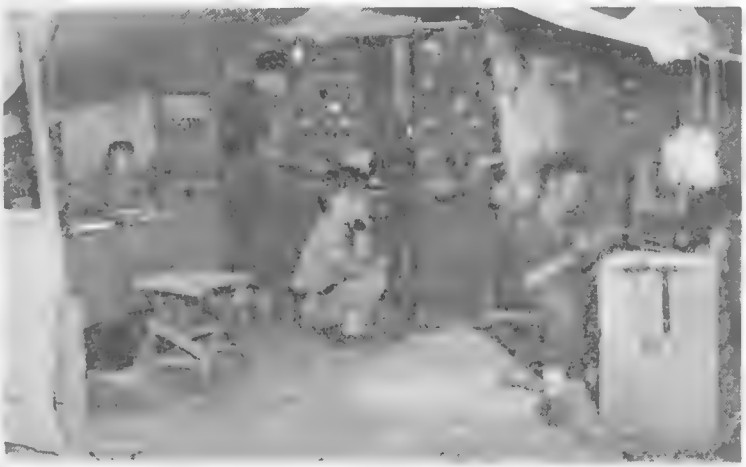
Whilst on nostalgia, a query on Further Veteran Nostalgia. Does any former Army Signals persons recall the ancient (probably circa 1920s/30s) "Ack" or "Cork" sets (transmitters), which I can vaguely recall doing some training on very early in WWII, probably 1939. Al VK4LT, recalls that they had a big Douglas motor/generator to drive them. There are probably a few samples still hidden in some Ordinance or Signals Depot somewhere!

The new shack in May 1945 — approximately 100 x 35 feet (30 x 10 metres) with a pile of the 94 and 95 Wireless Sections equipment waiting to be unpacked. Corpulent Sergeant Wal Badge supervisors from the top of the heap.

Boring holes in Morotai Island. They did actually do this through the coral crust to "great nothingness."

The "Slaves" at work erecting a PL (permanent line). "Wot, no back hoe?"

Signal Office Staff, Morotai 1945.



The receiver racks for the double diversity reception of the High Speed W/T terminal from Melbourne. Two AMR100 (101?) receivers with Undulator head between them on Morotai 1945.

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER
Box 1234, GPO, Adelaide, SA. 5001

JULY

1 Canada Day Contest
4 — 5 Venezuelan SSB Contest
11 **AHARS National Sprint CW**
11 — 12 IARU World Championship
18 **AHARS National Sprint SSB**
18 — 19 CQ WW WPX VHF Contest
25 — 26 Venezuelan CW Contest

AUGUST

1 YLRL YL-OM SSB Sprint
15 — 16 **Remembrance Day Contest** (Rules this issue)
15 — 16 New Zealand Memorial Day Contest
22 — 23 All Asian CW Contest (Rules this issue)
1 — 31 40th Anniversary Pakistan Award (See notes below)

SEPTEMBER

19 — **20** Scandinavian CW Contest
26 — **27** Scandinavian SSB Contest
26 — **27** CQ WW RTTY Contest

OCTOBER

14 **Australian Ladies' Amateur Radio Association Contest**

Contests listed in **bold type** are WIA sponsored contest.

Well, it appears that this month I have a great deal of material to deal with. The Federal Convention has been held, the VK Novice Contest is coming soon and, as I write these notes, I am also completing work on the Field Day Contest Logs. I have also present the rules for the *Big One* namely the Remembrance Day Contest. So, life is certainly not dull.

It seems to me that we each have a wonderful opportunity to learn. As we progress throughout our lives we find that there is nothing better than experience as a teacher. Some of us are fortunate and seemingly have little difficulty in most of what we do, others have to work harder at it and others again find things somewhat of a struggle. Nevertheless life goes on. I believe that our hobby of amateur radio can be a great help to us in assisting us to develop and that we can also encourage others to improve as well.

I am reminded though of the story of a man delivering a lecture on the subject of "self-improvement". As part of his talk he pointed out that we should strive for perfection, but that we could never really be perfect. He then asked anyone who thought themselves to be perfect to stand up. To the lecturer's surprise one man stood. Asked if he really considered himself perfect the man replied; "Certainly not. I am standing as proxy for my wife's first husband."

Well, practice can make perfect and I would suggest that you can always gain experience and thus improve by going in contests, trying them if we haven't tried a contest before, planning our station and operational approach, preparing our logs, etc, with an eye to doing better each time.

And, so now to the rules for the Remembrance Day Contest. You will find them pretty well unchanged from last year. Again I would point out that my aim has been to try and establish a set of rules for each contest which can remain stable. Times and conditions however do change and I do not mean to infer that we should remain hide-bound about everything, thus, at times, the need for change can become apparent.

REMEMBRANCE DAY CONTEST, 1987

First of all I will list the names and call signs of those operators who lost their lives whilst on active service during the Second World War, and who are commemorated with their names being engraved on our Remembrance Day Contest Trophy. It is these names you will hear read out as part of the Opening Ceremony prior to the commencement of the Contest.

VK2BQ	F W S Easton	Royal Australian Air Force
VK2JV	C D Roberts	Australian Military Forces
VK2VJ	V J E Jarvis	Royal Australian Air Force
VK2YK	W Abbott	Royal Australian Air Force
VK2AJB	G C Curle	Royal Australian Air Force
VK3DQ	J D Morris	Australian Military Forces
VK3GO	T Stephens	Royal Australian Air Force
VK3HN	J McCandlish	Australian Military Forces
VK3IE	J E Mann	Royal Australian Navy
VK3NG	N E Gunter	Australian Merchant Marine
VK3OR	M D Orr	Royal Australian Air Force
VK3PL	J F Colthorp	Royal Australian Air Force
VK3PV	R P Veall	Australian Military Forces
VK3SF	S W Jones	Australian Military Forces
VK3UW	J A Burrage	Royal Australian Air Force
VK3VE	J E Snadden	Royal Australian Air Force
VK4DR	D A Laws	Australian Military Forces
VK4FS	F J Starr	Royal Australian Air Force
VK4PR	R Allen	Royal Australian Air Force
VK5AF	C A Ives	Royal Australian Air Force
VK5BL	B James	Royal Australian Air Force
VK5BW	J G Phillips	Australian Military Forces
VK6GR	A H G Rippin	Royal Australian Navy
VK6JG	J E Goddard	Royal Australian Air Force
VK6KS	K S Anderson	Australian Military Forces
VK6PP	P P Paterson	Royal Australian Air Force

They shall grow not old as we that are left grow old
Age shall not weary them nor the years condemn
At the going down of the sun and in the morning
We will remember them.

With the notes in connection with the Remembrance Day Contest last year, I remarked on the number of operators listed who were members of the Royal Australian Air Force. I asked whether anyone had any historical information regarding that era of Australian amateur radio. Up to now I have not heard from anybody.

It occurs to me that most of those who served during the Second World War and who might have information, will now be getting along in years. It would be a dreadful shame if so many stories went unrecorded. So I would again request anyone who has such information to pass on, please forward it to me. I will see that the details are preserved. Did you perhaps know any of the amateurs listed above?

Where did they serve, etc? Do you have a story to tell about your operations in the Forces? Any information will be welcomed. It may be that, after finishing my term as FCM, I could put a small series together. Don't worry if you don't think you are any good at writing, still send the information and I will undertake to put it into shape. Maybe you may find it easier to place the details on an audio cassette!

Following are the rules in detail.

1987 REMEMBRANCE DAY CONTEST — RULES

This contest is held to commemorate those amateurs who died during WWII, and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

This contest is held annually during the weekend nearest August 15, the date on which hostilities ceased in the south-west Pacific area.

The contest is preceded by a short opening address by a notable personality, which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony, a Roll Call of the names of those amateurs who paid the Supreme Sacrifice, is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice and so perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition, the winning Division will receive a suitable certificate. The winning Division also holds the trophy for the next 12 months, after it is presented at the Annual Federal Convention.

Objectives

Amateurs in each VK call area will endeavour to contact other amateurs:
* in other VK call areas, P2 and ZL on bands 1.8 to 30 MHz, except the 10, 18 and 24 MHz bands.
* in any VK call area, including their own, P2 and ZL on bands above 52 MHz, and as indicated in Rule 5.

Contest Period

0800 UTC August 15, to 0759 UTC August 16, 1987.

All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest.

It is during this period that the Opening Ceremony Broadcast, referred to above, will take place. (We invite even those stations who do not intend to participate in the contest to join with us in this mark of respect).

Rules

1. There will be two contest categories.
   (a) High Frequency (HF) — for operation on bands below the 52 MHz band.
   (b) Very High Frequency (VHF) — for operation on bands from 52 MHz and upwards.
2. In each category there will be three sections.
   (a) Transmitting Phone
   (b) Transmitting CW
   (c) Receiving.

Modes applicable to each section are as follows:
   (a) AM; FM; SSB; TV
   (b) CW; RTTY
   (c) Receive (a) or (b).

3. All Australian amateurs (VK call sign), ZL and P2 stations may enter the contest, whether their stations are fixed, portable, or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.
4. Cross Mode Operation is permitted. (eg SSB to CW). Cross Band Operation is not permitted excepting via a satellite repeater.
5. Scoring Contacts
   (a) All contacts score **one point.**
   (b) On all bands a station in another call area may be contacted once on each band using each mode. That is; you may work the same station on each band in Phone, CW, RTTY and TV.
   (c) On the bands 52 MHz and above, the same station in **any** call area may be worked using any of the modes listed, at intervals of not less than **two hours** since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.
   (d) Acceptable logs for all entries must show a minimum of at least 10 valid contacts.
6. Multi-Operator Stations Are Not Permitted (except as in Rule 7), although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own call sign. Should two or more operators wish to operate any particular station each will be considered as a contestant and must submit a log under the individual call sign which applies to that operator.
7. Club Stations may be operated by more than one operator, but only one operator may operate at any time; ie no multi-transmission. All operators at any club station must sign the declaration.
8. Ciphers. For a contact to be valid, serial numbers must be exchanged between stations making the contact. The serial number will comprise **three figures** commencing at 001 for the first contact and incremented by one for each successive contact. Should the serial number 999 be reached, the serial number will revert again to 001.

9. Terrestrial Repeaters — Contacts via terrestrial repeaters are not permitted for scoring purposes. Contacts may be arranged through a repeater and if successful on another frequency will count for scoring purposes. The practice of operating on repeater frequencies in simplex mode is not permitted.
10. Portable Operation — Log scores of operators located outside their allocated call district will be credited to that call area in which the operation takes place; eg VK5XY/2 — this score will be added to the VK2 Division score.
11. Entries — A log of all contacts must be submitted. This should be in the format as shown in the example and must be on one side of the paper only.

A Front Sheet must also be included showing the following information in this order:
Category (HF or VHF). Section (Phone, CW or Receiving). Call Sign, Name, Address, Total Score, Page Tally.
Declaration: *"I hereby certify that I have operated in accordance with the rules and spirit of the contest."*
Signed: . . . . . *Date:* . . . . . .

Logs are to be forwarded to the Federal Contest Manager,

C F Beech VK7BC, 37 Nobelius Drive, Legana, Tas. 7251.

Envelope to be endorsed **REMEMBRANCE DAY CONTEST** on the **FRONT** outside. Entries must be forwarded in time to reach the Federal Contest Manager by September 28, 1987. Any entries received later than this date may be used as Check Logs only.
12. Disqualification — See the general disqualification rules as printed in detail in the August 1986 issue of *Amateur Radio.*
Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified.
13. Awards — Certificates will be issued in accordance with the *Guidelines for Certificate Issue — Remembrance Day Contest* details of which are published below.

DETERMINATION OF WINNING DIVISION
Scores by stations in VK0 are added to VK7. Scores by VK9 stations are added to the mainland call area which is geographically nearest. Scores claimed by ZL and P2 stations are not included in the scores of any VK call area.

The formula used to determine the winning WIA Division is applied on a Divisional basis using a combination of three factors, namely, involvement, activity and weighting (Handicap).

The Weighting Factor is calculated such that should each WIA Division perform equally as well in 1986 as in a set number of previous years, the result would be a seven-way dead-heat.

Consequently, the most improved Division will win the trophy and also earn a revised and lower weighting factor for the following year.

DUPE SHEETS
Where stations make a reasonable number of contacts it is most helpful that they use some form of checking system to ensure that they do not have invalid duplicate contacts. A form of sheet which provides a convenient method of making such checks was described in *Amateur Radio,* December 1984, page 54. I would suggest that you should use such sheets. Whilst it is not mandatory that you do so, it could be of assistance to the contest manager if you forward a copy of same, together with your log.

RECEIVING SECTION RULES
1. This section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.
2. Contest Times and logging of stations on each band are as for transmitting.
3. Logs should be set out as per the example. It is not permissible to log a station calling CQ. The detail shown in the example must be recorded.
4. Scoring will be as per Rule 5 for transmitting with other aspects of that same rule also applying.
5. Club Stations may enter this section. All operators must sign the declaration.

AWARDS FOR SWLs
Certificates will be awarded to the highest scorer in each call area. Further certificates may be issued at the discretion of the FCM.

GUIDELINES FOR CERTIFICATE ISSUE, REMEMBRANCE DAY CONTEST
Certificates will be issued on the following basis:
1. Top scorer in each section. (See also 4 below)
2. Top Novice Class Station in each section, but as per proviso 3 below. (N/K calls compete on an equal basis when operating in HF (Novice) Band Segments, therefore there is no justification for separate certificates for each different type of call sign).
3. Where an entry other than top scorer is concerned (as per 2 above), a certificate will only be issued to a station if that station's score is equal to, or greater than, the average score in the applicable section for that State/Division.
4. Where only one entry exists in any section, a certificate will only be issued when the score for that entry is equal to, or greater than, the average national score for that category/section of the contest.
5. On VHF, the top scorer only in each section will be awarded a certificate. (There is no justification for separate certificates for holders of Full, Z or K calls as each competes on an equal basis on VHF).
6. The above rules apply with the understanding, as already determined policy, that the Federal Contest Manager has the power of discretion in such matters and may either award additional certificates where he considers it warranted or not issue a certificate if he considers one unwarranted.

GENERAL COMMENT
You may again wish to mote the fact that the NZART Memorial Day Contest is being held on the same weekend as the VK Remembrance Day Contest. This is not just a coincidence but results from an agreement between myself and Jock White ZL2GX, who is Contest Manager for New Zealand. Following the 1986 Federal Convention, Jock and I had some quite lengthy discussions as to the best ways to rationalise contests in each of our countries. We decided that it was possible to at least have the Field Day Contests coincide as well as the two previously mentioned. It was also agreed that contacts in each contest could count for either.

Therefore, if you wish you can enter both the Remembrance Day and Memorial Day Contests and utilise the same contacts where they can be applied on a common basis under both sets of rules.

At this time, I do not have a copy of the Memorial Day Contest available, however, I hope to receive a copy in time for publication in this issue of *Amateur Radio.* If you do not find the rules published herewith I will try and ensure that they appear in the August issue. That should still give you enough time to study them prior to the contest date.

While I am on a subject allied with the New Zealand scene, I would like to make some comment regarding Jock ZL2GX, who I understand is retiring as Manager for the VK/ZL Contest after at least 40 years of administering same. This is undoubtedly a tremendous effort and I am sure that he will be missed both for the work involved and also for his incisive humour which often came to the fore in Jock's comments with the contest results.

I would also like to acknowledge Jock's kind and gentlemanly co-operation in matters concerning contesting in general and, particularly, where the interests of both the WIA and NZART were involved. I have enjoyed working with Jock and I wish him well as he perhaps takes a well-earned rest. (I don't believe for one moment that he will rest anyway. He is bound to have some other activity to more that fill his time!). Congratulations and thanks on behalf of so many who have benefited from your efforts, Jock.

So, now my final words in connection with the Remembrance Day Contest: "Go to it, try hard, have fun, and ***please do help the incoming Contest Manager by presenting logs of a high standard.*** Also ***please read the rules and comply fully with them,*** they are not really too hard to follow. Best of luck to you in this, the classic event on the VK Contest Calendar."

EXAMPLE FRONT SHEET

Remembrance Day Contest 1987
Category: HF **Section:** (a) Transmitting Phone
Call Sign: VK1XXX **Name:** Joe Brown
Address: PO Box 123, Farm Orchard, ACT. 2611
Total Score: 1498 points

Page Tally	10 Sheets	1498 points
	Page	Score
	1	40
	2	39
	3	40
	-	-
	-	-
	Pages 10	Total 1498

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.
Signed: J Brown **Date:** 20.8.87

EXAMPLE RECEIVING LOG
Remembrance Day Contest
NAME/SWL NO: L30371. **CATEGORY:** HF
SECTION: (c) Receiving Phone

Date Time (UTC)	Band (MHz)	Mode	Stn Calling	Stn Called	No Sent	No Rcd	Pts
15 8 87							
0800	14	SSB	VK1XXX	VK2QQ	001	002	1
0802	"	"	VK1XXX	VK6LL	002	001	1
0805	"	"	VK5ANW	VK1XXX	011	003	1
0807			ZL2AGQ	VK1XXX	003	004	1
0809	"	"	VK7AL	VK2PS	007	010	1

Page 1 of 7 Page Total 40

EXAMPLE TRANSMITTING LOG
Remembrance Day Contest 1987
Call Sign: VK1XXX **Category:** HF
Section: (a) Transmitting Phone

Date Time (UTC)	Band (MHz)	Mode	Call	No Snt	No Rcd	Pts
15.8 87						
0800	14	SSB	VK2QQ	001	002	1
0802	"	"	VK6LL	002	001	1
0805	"		VK5ANW	003	011	1
0807		ZL2AGQ	004	003	1	
0809	"	"	VK4XX	005	007	1

Page 1 of 10 Page Total 40

40TH ANNIVERSARY PAKISTAN AWARD

I have received a copy of details for the 40th Anniversary Pakistan Award in the mail. Whilst this is not a contest, I am providing the rules for this award as it appears the information was sent to me rather than to the Awards Manager. I know that he will forgive me for "poaching" and also that he would not want any of you to miss out on the information.

The rules for the award are as follows:

The Pakistan Amateur Radio Society has sponsored an award to commemorate the 40th Anniversary of Pakistan on August 14, 1987.
The Society will issue special award certificates and gifts to all amateur stations making **five** contacts with different AP2 stations on CW or SSB on any band/s from August 1 to August 31, 1987.
Special QSL cards will also be issued by AP2 operators.
During the period of the award, operators will be using their own call signs with stroke 40; ie AP2UR/40, etc.

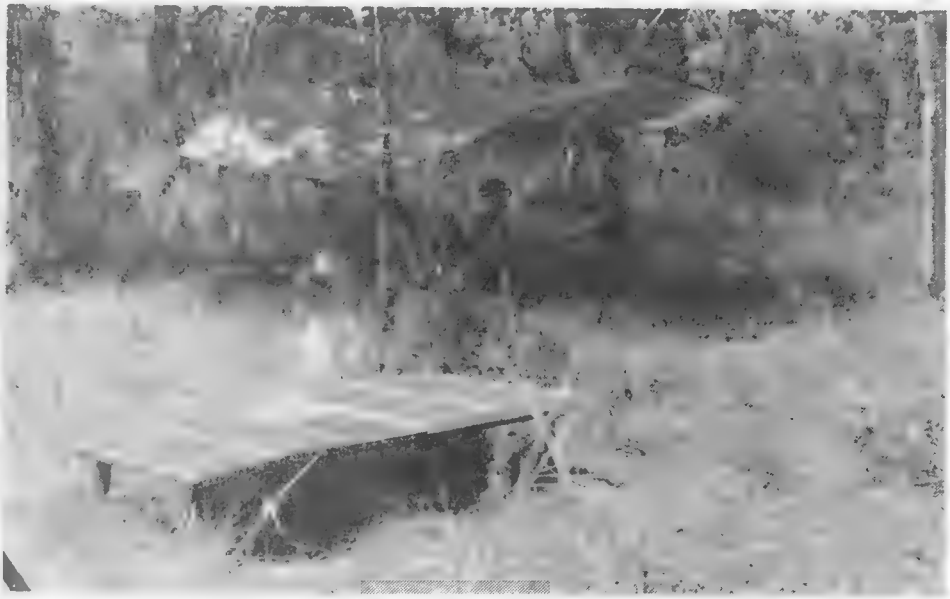
A certified copy of your log book/sheet, along with five IRCs should be sent to the Secretary, PARS, Box 65, Lahore, Pakistan, to reach there not later than September 30, 1987.

The information about this award was kindly supplied by AP2ARS, above the signature of the Secretary of the Pakistan Amateur Radio Society.

JOHN MOYLE MEMORIAL FIELD DAY CONTEST 1987 — RESULTS

I am pleased to be able to provide the results of this contest for you and also that of the President's Cup Award.

A PICTURESQUE JOH

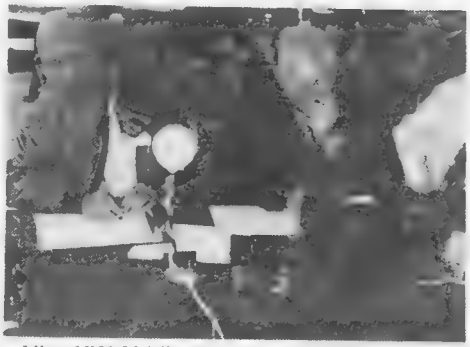


The Solar Panels catch the sun in the foreground, whilst the operators of VK8BP take refuge under a tarpaulin.

Battery Power for VK8BP.

VK6ANC, used an exercise bike and solar panels for power.

Lewis VK2LS, operates VK2BOR.

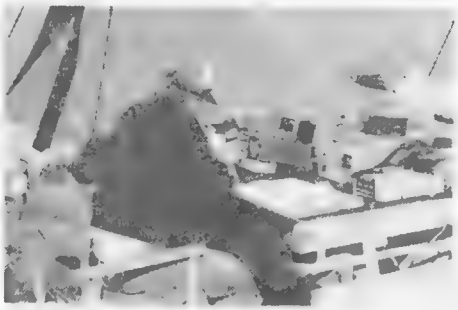


Allan VK2ALI (left) and Keith VK2KDL, President of the Oxley Region ARC, operate VK2BOR, during the Contest.

VK[illegible]

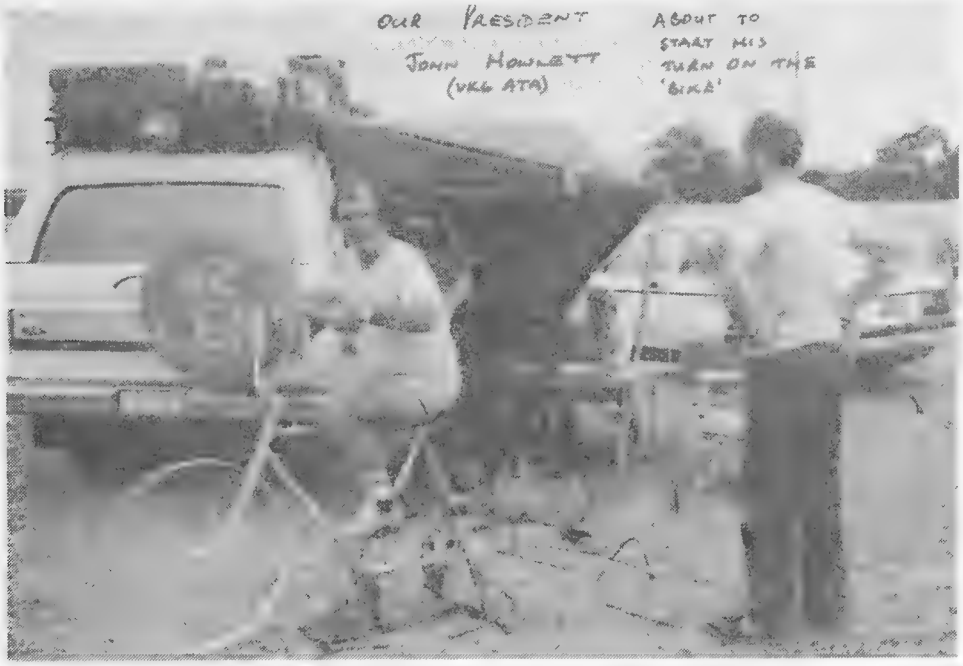
The JMMFD Contest Station Aerial of VK5DI/P, with the Solar Panel at the Base of the Pole.

The Operations Caravan of VK4WIR.



VK2DVU, portable Brindabella.

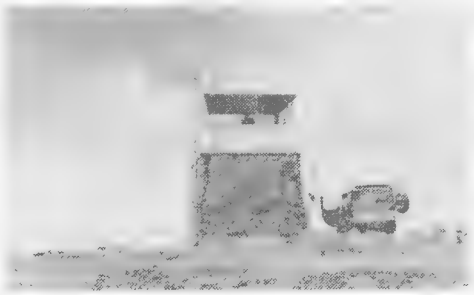
HN MOYLE FIELD DAY!



John VK6ATA (pedalling), Phil VK6ZPP (operating) and Dennis VK6ZN (observing) at VK6ANC.

The Fire-Spotter, David Wiggins, provided Gil VK3CGG, with some company during the Contest.

John VK6JY, provides the power? at VK6ANC.



"The Shack" on Mount Hotham.

Wind Generator, Mount Hotham.

K6ANC.

Gil VK3CGG, operated from Mount Hotham and was treated to magnificent views of the surrounding countryside.

The VK6ANC John Moyle Field Day Site.

The Field Day Contest was again well patronised with the number of participating stations almost the same as for last year. Most entrants seem to have enjoyed the event and quite a number forwarded photographs taken at their Field Day sites. I have already provided some material, which was published last month. I thank all who have contributed with stories, comments and photographs. Such contributions certainly add to the amount of interest.

PRESIDENT'S CUP

Again, the President's Cup has been won by Gil VK3CGG (now VK3CQ). It seems that Gil is determined to stay at the top in contesting as you will note from the June issue of *Amateur Radio* that he was the winner of the CW Section for the Contest Championship Trophy, 1986.

Congratulations to you, Gil, for your perseverance and determination. I hope that you will continue your contesting efforts for many more years to come. Perhaps your example will help spur others on to try and emulate your activities.

When it comes to contesting I feel that is just what it should be — ***a contest*** — and the more competition the better it is.

Now for the detailed results which are listed in order of Section, both six and 24 hours, and showing the number of contacts and points scored by each station.

24 HOUR DIVISION ***SIX HOUR DIVISION***

CALL	QSOs	PTS	CALL	QSOs	PTS
Section (a) Phone, Single Operator					
VK3YH	276	5296	VK3ADW	74	1758
VK3AJU	209	2927	VK5QX	164	1365
VK2TR	45	1674	VK3BRQ	137	1247
VK4JM	100	1537	VK2DVU	57	871
			VK4AIZ	48	687
			VK2ENU	63	668
			VK3VF	42	408
Section (b) CW, Single Operator					
VK3CGG	176	3184	VK3CFI	18	410
			VK2JM	8	118
Section (c) Open, Single Operator					
			VK3AFW	72	1898
			VK2BRC	66	805
			VK3AOJ	33	608
			VK2ARZ	47	483
Section (d) Phone, Multi-Operator					
VK3BCG	390	13185	VK4WIZ	448	4397
VK3ANR	830	9981	VK4WIN	416	3750
VK4IZ	604	7437	VK5BAR	159	2298
VK1WI	410	6173	VK6YG	60	867
VK5BAD	213	5523			
VK4WIT	212	2521			
VK2SCC	168	2507			
VK3AWS	152	2473			
Section (f) Open, Multi-Operator					
VK3CNE	641	26065	VK2BOR	91	2106
VK2WG	473	17126	VK4QC	169	1682
VK3SCD	547	9134	VK4WIM	104	1297
VK4WIR	309	8231	VK4BPA	35	384
VK5AJQ	275	6092			
VK5LZ	226	4888			
VK6ANC	303	4798			
VK2HZ	456	4039			
VK2FFG	334	3659			
VK5ARC	275	3391			
VK8BP	147	3326			
VK8DA	166	2091			
VK2ESL	113	1839			
VK4HM	127	1520			
Section (g) Transmitting, VHF					
VK3YSY	166	8101	VK5DI	23	2945
VK2BN	94	5909	VK1RH	5	61
VK3BML	96	3252			
Section (h) Home Station, Emergency Power					
VK2MB	274	3112	VK4AGQ	56	1549
VK5ADD	111	1136	VK5NOD	122	1121
VK6ARD	68	319	VK2BQS	66	573
VK2OD	24	265	VK4YJF	22	445
			VK6AFW	6	134
Section (i) Home Station					
VK6DA	53	349	VK3ZI	26	192
VK6ED	11	271	VK3KS	4	42
VK6ARD	42	260			
VK3XB	7	102			

Section (j) Shortwave Listener

L60036	64	690

Check Logs

VK6WZ VK3CIS
VK5AJG VK5DI
VK5AUS

I have reduced the number of points claimed by one club station by an amount of 10 percent of the points scored as a penalty for not having provided a summary sheet of contacts made for which distance multipliers were claimed. This reduction did not affect the final result, however, I would have been within my rights had I disqualified the log altogether. Attention to detail is important when you make out your contest entry. So **please check you logs before submission.** Generally speaking the standard of logs was fairly good for this contest with again the entry from VK3CNE being an outstanding example of how it can be done.

I have no doubt whatsoever as to the operations carried out by the station VK6ANC, as those concerned with that station had gone to the trouble of filling out a Statutory Declaration witnessed by a Commissioner for Declarations, indicating just what the operating conditions, etc, for that station were. This is the first time that I have received a Statutory Declaration as such with a log, however, it certainly indicates that those concerned wanted to make sure that their entry was properly accounted for. At least one log submitted was incorrectly scored to an extent that I did not accept it as an entry and have instead included it as a check-log. In cases where I can re-score logs without too much difficulty, I have done so in a number of contests, however, where such action would require too much of my time I have either disqualified the log concerned, returned it to the sender for correction and/or re-submission, or discarded same.

It always seems to me to be a pity when entrants have their logs disregarded due to the fact that, after having carried out their operations in a contest, they neglect to read the rules regarding log layout and submission and fail to follow the instructions given.

The letter accompanying the log from Maggie VK3CFI, deserves comment. Maggie operated CW-only and with solar power. I quote: "Except for a few CW QSOs over the past two years, I had not done much serious operating in that mode. For a while it was hard to sort through all the dits and dahs. I think I asked each operator to repeat the number two or three times. Even then, I wasn't quite sure. The ZLs all were good operators, but their CW was very fast.

"I was afraid the solar charged batteries might get drained too much, but the worry was for naught. Sunlight for four of the six hours helped, I think.

"This was my first contest solo. I'm glad there was a six hour Division — 24 hours would have been too long. The OM and harmonics brought me some tea and provided me with company, about halfway through.

"Thanks for the contest, I'll be better prepared with my CW next year." Well done, Maggie. Keep up the good work. (FCM)

Now for comments from other logs.

"First time I've entered the JM. . .This year activity had to compete with duties as Acting BC Officer VK6 Division, preparing the Sunday Morning Broadcast, a bachelor's household tasks and our first really trying period of humid weather this summer. Enjoyed taking part. . .beginning to wonder if contests are getting to me! Only the RD has had anything like regular participation from me in the past. . .other contests have been dismissed as a bore! BUT. . .?" —VK6WZ.

"I still think that Section (h) warrants inclusion in the Contest Championship points. eg the mobile does nothing unusual and only drives somewhere and in fact he need only park in the neighbour's driveway. The Section (h) needs to do something and of course try to make it as realistic as possible. I wonder if I am "portable" and not "home"? The only thing common to my "Emergency HF" and my "Home Station" is the G5RV itself, even the feedline and earths are changed. Even the beams are not used as emergency power does no extend to the rotators. VHF is different, it is standard shack gear on battery power (which I had to carry out) although no beam. Perhaps I am portable after all. Just some ideas." — VK2BQS.

Here I think I might make some comment. The rules for the contest used to stipulate that no normally occupied premises could be used to house a field day station, also that the venue for operation must be a certain minimum distance from the home location. In fairly recent times, prior to my term as FCM, these parts were dropped from the rules. I have no strong feelings on the matter in view of the fact that in an emergency, a station may need to be set up almost anywhere. I had considered that a "Home Station — Emergency Powered" would be a normal home station running from such as batteries, generator or solar power, etc. It seems to me that Jim VK2BQS, has gone to much greater lengths than I envisaged to make his entry more worthwhile. For this, he is to be commended. Yes! He comes close to his station being acceptable for the "portable" category. Maybe all that is needed is another antenna as I know that he sets his equipment up in another part of his house away from his normal operating location. The approach to the Contest Championship competition is such that "Home Stations" either on emergency power or mains power generally do not require the amount of work necessary as applies to setting up a Field Station. It would seem that most operators do follow the spirit of things and also that very few entries are received from operators simply pulling up somewhere in their usual "mobile" unit and participating in the Field Day.

Whilst on general comment, I would refer you to my remarks regarding my report to the Federal Convention and the outcome of my recommendations to same. I would expect that from the next Field Day Contest the new FCM will have addressed the various points concerned and thus the rules for next year will be somewhat different. Now for even more comments from logs.

". . .There could be a new section added to the contest which would cater for the QRP operators. . .I am not suggesting that special bonuses should be given for distances. This should however be discussed with the QRP fraternity. What I am suggesting however is a new section where the maximum power output is limited to say five-10 watts. This would encourage more operators to join the contest. I have operated QRP since 1979 and have entered the contest or operated in it since that time and have found it annoying when contestants use high power and do not give the small fry a go. Anyway, I had a good time this year, especially as there appeared to be better conditions. Until next year, 73 and all the best." — VK2ENU. (Well, what do other QRP operators think? Any other comment? I am sure that new FCM will be interested to hear from you. FCM).

"As a Home Station — Emergency Powered, I only just made it, erected telescopic mast with beams for six and two and two metre Ringo on Saturday afternoon, G-clamps to facia boards, new two-storey house, all very temporary. Was then worn out so didn't start operating until Sunday morning. . .disappointed by lack of field stations on the Sunday, especially after the number of call-backs following the local WIA broadcast 2300 hours Sunday. Practically all stations had something better to do because they were not heard again until contest finished. I hope the contest continues and next year I will try and be a field station." — VK4YJF.

"This was a day of 40 over S9 trouble for me, so had limited time to operate. Luckily, it was a pleasant day for once. I noticed greater use of full RST in reports this year." — VK2JM.

"Sorry for the feeble effort this year. I was unable to go portable and divided my time with the BERU. Next year, I am determined to be there with wind power." — VK6ED.

"Really enjoyed the contest. Didn't expect to make any two metre contacts due to my location in a valley surrounded by two to three thousand feet high mountains, however, a couple of the VK1 boys were up there and I had one contact with Wagga, 125 km to the west of me, on backscatter from the mountains to the east." — VK2DVU.

"VK4WIT was located at Camp Brosner in the Barvey's Range about 30 km west of Townsville. The equipment used included an FT7, IC751A, IC735, TS120S, dipole antennas, powered by a portable generator." — VK4CD, Station Manager.

"Batteries were one Lucas Marathon (truck size), one 15-plate Pulsar and one 10-plate Pulsar. Generator was smallest size Honda — EM500 — easily carried by one person. Rigs were generally run at less than full throttle. One battery was recharged during operations but was not brought back into service. Antennas were supported by ex-Army tripod mast. Difficulties in getting it to full height of 33 feet obliged use at 24 feet. . .inverted Vees for 80, 40 and 20 metres (with 40 metres doubling for 15) and five-eighth ground plane for 144 MHz on six foot extension to mast. Shack was a tent with folding table within. The only man-made structure at the QTH was a concrete water tank, presumably for fire-fighting in the surrounding pine tree plantation. At one time the QTH was an airstrip but has been abandoned as such." — VK3AJU.

"This year, my second, I had a great time. The weather was a bit chilly overnight, down to one degree Celsius, but I survived. I did enjoy my second contest in the Field Day." — VK3YSY

". . .a bit disconcerting coming up against the BERU Contest after seeing nothing in AR about it. . .managed to work the whole 24 hours. . .found my Morse was still as

good at the end as at the beginning. I wonder how long one could go. The Forests Commission, now CFL, was helpful in letting me get out of the wind into the fire tower right on top of Mount Hotham, there was an old telephone pole about 20 feet away which was just right for my antenna. I am sure this is the way to go in future, but I hope to get an old caravan to turn into a mobile shack, together with a buddy we can operate HF and VHF. There were plenty of guys breaking the squelch on my two metre hand-held in the middle of the night, some from a good distance away, too. . .Solar Panel, 14 volts by one amp measured. Wind generator, a failure, out of balance." — VK3CGG.

"Station sited on Mount Coree, 1421 metres elevation. Just inside the ACT side of the NSW border. . .a KDK two watts FM into a HL160V amplifier. . .100 to 120watts depending on state of charge of the vehicle battery. . .topped up by a Kawasaki alternator feeding a 20 amp power supply. . .the antenna, a 6 dB 18 feet collinear on top of a 27 foot telescopic mast pocketed into the bull-bar with six guy ropes. Wife, Kath VK2ACP, provided the meals and ruled up some log pages." — VK2BN.

"Thanks for an enjoyable contest." — VK3AOJ.

"Our operators and club members generally always enjoy the opportunity to co-operate as a club and the Field Day provides valuable training for our members." — VK4BIF for VK4WIN.

"Thanks for including Section (h) in the contest. I was unable to go portable that weekend and was very happy to be allowed to participate with at least simulated conditions. Hope to be portable somewhere next year." — VK5ADD.

". . .unable to attend this year, but the boys told me they thoroughly enjoyed the contest once again, , ,have enclosed our 'ready reckoner' type score card. . .It was a great help to all the boys as they could identify the sections easier. It also helped me no end in checking their efforts, perhaps it could be improved upon and used in AR for guidance of contestants in the years to come." — VK2BFP for VK2BOR.

suggested to another station that we QSY to CW for an exchange, we would be obliged to wait while a CW operator was found at the other end." (At least that way two operators had the experience of a CW contest QSO, FCM) . . .you might be able to clarify a point in your column. We often padded out our CQ-Contest calls with invitations to explain contesting to any stations who didn't know what was going on. We would also say that any station could work us and that it wasn't necessary to formally enter the contest in order to make an exchange. Doing this in the quiet periods was obviously in our interest. At one stage, however, we were chastised by an anonymous station who accused us of going outside the spirit of the rules. I'd be interested in your opinion. It's worth pointing out that such CQ-calls often resulted in lengthy QSOs where we explained contesting in great detail to the other station, and these other stations then started handing out numbers to many other serious entrants." — VK3CRA for VK3SCD CRETINS (Cheltenham Radio, Electronics and Technology In Scouting).

The previous comments do warrant a reply. It is my very strong opinion that stations operating in a contest can do a great deal to benefit the hobby by taking an active interest in helping others understand what contesting is about. The actions of the operators at VK3SCD are to be encouraged and, far from being against the spirit of the contest, are in fact enhancing same. They also add to the friendly spirit of our hobby and follow well "The Amateur's Code" which sometimes, unfortunately, seems to be forgotten. I have also, during a contest, when things become rather slow, gone scanning the bands to find other stations who may not be in the contest and spent quite some time "encouraging" them to provide me with a contest exchange. This has resulted in some cases in disappointment, but in others, the extra points I wanted and as well the stations concerned have also gone on to provide other contacts. So you can see that I understand what you mean in your comments. My advice is to "go for it" and make as many contest contacts as possible as long as you are not breaking contest rules, Departmental

The "Ready Reckoner" as used by the Oxley Region Amateur Radio Club.

Section Letters to be used in our Log;

LETTER	STATION TYPE:	TRANSMITTING:	OPERATOR:	POINTS SCORED WITHIN AUSTRALIA: OUTSIDE VK2	WITHIN VK2
A	PORTABLE FIELD	PHONE	SINGLE OP	20	15
B	PORTABLE FIELD	C.W	SINGLE OP	20 CW to CW	15 But, =Double
C	PORTABLE FIELD	OPEN	SINGLE OP	20	15
D	PORTABLE FIELD	PHONE	MULTI OP	20	15
E	PORTABLE FIELD	C.W	MULTI OP	20 CW to CW	15 But, = Double
F	PORTABLE FIELD	OPEN	MULTI OP	20	15
G	PORTABLE FIELD	VHF	Either	20	15
H	HOME STATION	EMERGENCY POWERED	Either	10	5
I	HOME STATION	MAINS POWERED	Either	2	1

Note: The above table does not apply to stations outside of VK (Overseas Stations) as they only score 2 points anyway.

NB: See rules re CW to CW. NATURAL POWER adds additional 10 points

". . .equipment used was an FT707 12 volt DC input. . .power generating system was a single 12 volt truck battery. . .had been fully charged before the contest. . .car battery was available fully charged and could have been used via jumper leads from car. . .HF antennas were one two-element closed spaced Yagi for 14 MHz, Webster Bandspanner mobile whip for 3.5 to 28 MHz. VHF antennas were a seven-element crossed Yagi for 144 MHz and a 14 element Yagi for 432 MHz." — VK2OD.

"The competition this year was most enjoyable as we all got sunburnt at our location — Mount Wombat — the site of the Channel 1 Shepparton repeater. Would it be possible for next year to change the rules in some way to promote the early hours (2 am to 6 am) VHF and UHF contacts." — VK3KIR for VK3BCG.

"The scoring system was too heavily biased in favour of long distance VHF and UHF contacts. It almost seemed that a single-handed six metre operator could, on a good weekend, defeat the efforts of a group like us single-handed. Something else we also lacked was a good CW operator. VK3DCA and I were game enough to make a few contacts with the key, although almost all of them were tail-ended onto a phone contact. Invariably, when I regulations or doing anything which is not within the spirit of amateur radio in general. Unfortunately, some people have fairly narrow views on some of these subjects. — FCM.

"I enjoyed the Field Day (my first attempt) and hope to do better next year from a better location nearby and when I am better organised, and equipped for solar panel operations without battery. (Provided the sun shines). I hope to be able to operate VHF and HF (100 watts PEP) next time using solar panels and capacitors but I must choose a better operating time-slot for more activity." — VK3DI.

And, finally comment from the boys from the Wagga Amateur Radio Club, VK2WG. "A disparity in point scoring between HF and VHF with the greater emphasis on the VHF spectrum is of concern to the HF operators. HFs unproductive yield of points in comparison to VHF may attract field starters away from HF bands. Some of the regular HF stations did not appear this year or pursued VHF as a prime thrust. A middle road needs to be struck, to continue stimulation of activity on ALL pieces of spectrum or a continual degradation of HF participation may result. This current situation would, we feel, distract from the object of the field day and the spirit of the entire event."

The Wagga boys go on to comment on the portions of the rules dealing with ZL Field Day Stations which were originally omitted. The April notes for this column did point out quite clearly that it was too late to do anything about the rules for the Field Day Contest and the omissions which had occurred. There does seem however, that there was some doubt left in the minds of some of the entrants. I apologise if such is needed and I have ensured that, where any doubt existed, the logs concerned were correctly scored or suitably amended. My notes pointed out the reason the missing portions of the rules were published was to provide a more or less permanent record of same for reference by the incoming FCM next year.

On the subject of VHF operation, I would again refer you to my notes elsewhere in this issue of the column dealing with my report to the Annual Federal Convention.

ROSS HULL VHF/UHF MEMORIAL CONTEST 1986

The results of the Ross Hull Contest as published in the April issue of *Amateur Radio* included an unfortunate oversight, for which I offer my humblest apologies. In listing the entrants I did so by call area and thus omitted to indicate that VK4FXZ/7 was entitled to a certificate for his operation from Tasmania. I received a nice letter pointing out this anomaly and express my thanks for same. When one goes to the trouble and effort that I know were involved so as to operate from a temporary location under various forms of difficulty, a certificate is certainly warranted. So, rest assured that, whilst this FCM is prepared to admit to making mistakes, he is also prepared to rectify them.

Whilst on the matter of certificates, I almost have all certificates up to date. These are gradually being processed through the Federal Office for mailing and I have promised the incoming FCM that he will have absolutely no backlog of certificates to deal with. This will include all certificates up to the 1987 VK Novice Contest. (Not yet held when this is being written). So, please be patient just a little longer if you are an expected recipient. All will be well before too much longer.

1987 FEDERAL CONVENTION REPORT

Should you wish to see a copy of the Federal Contest Manager's Annual Report, you can approach your Federal Councillor. Copies were mailed to all Divisions prior to the Convention.

My report to the Convention included comment on all the contests run throughout the year under FCM auspices, as well as the Contest Championship Competition Trophies, Certificates for the VK/ZL Contest and the Adelaide Hill Amateur Radio Society Sprints. In my report I acknowledged the help of Earl VK3BER and Jock ZL2GX, during the year. I also expressed the benefit of being able to consult with Ron VK1RH,on a personal basis as his visits to Adelaide permitted.

My report then dealt with various recommendations to the Federal Council. It is upon these that I would like to pass some comment.

It is necessary that recommendations be viewed in the light of as much information as possible and to this end I supplied a number of attachments to the report. So that the average member reading this can be fully aware of the background, I will supply as comprehensive a coverage of matters as can be allowed in these notes.

A working party at the Convention, chaired by the Alternate VK1 Federal Councillor, considered the FCM recommendations.

REMEMBRANCE DAY CONTEST

I proposed that the new FCM might look at the duration of this contest. It is suggested that 24 hours for same is excessive. Two periods within the 24 hours could be adopted or two Time Sections similar to the Field Day could be applied. The matter could be examined to allow discussion at the 1988 Federal Convention.

It can be clearly shown that the formula as applied over the past several years for determining the winning Division for the Remembrance Day Contest does not include any participation as it should. This is because the component containing participation has been cancelled out. Despite

the fact that the mathematical approach may have been correct, if a factor cancels out, then it plays no real part in determining the result.

Attachments to my report included a copy of the letter by Colwyn Low on the subject which was printed in *Amateur Radio* for March 1987, and a sheet detailing the arrangement of the formulas as it has been used and proposing a correction in line with the VK5UE suggestion such as to rectify the anomaly.

On these recommendations, the working party decided that the new FCM should report next year if the duration to the Remembrance Day Contest needed changing thus adopting my recommendation.

In the matter of the formula to determine the winning Division, the decision has been indicated as indeterminate. The minuted sheet provided to me states "no change but note the proposal is within existing guidelines."

It would thus appear that with the existing guidelines to control the actions of the Federal Contest Manager, I really had no need to bring this matter under the notice of the Federal Convention. You will note that I have not spelled out the format of the formula in the Remembrance Day Contest rules in this issue. Rather, I have shown the content of the guidelines in the FCM's "Terms of Reference." These show that the formula to be applied should contain the three factors, involvement, activity and the weighting (handicap).

My recommendation to the Convention was:

"That the scoring system used to determine the winning Division in this contest be changed in such a manner as to retain the concepts of Participation and Activity as factors within the formula."

I then went on to say that "The current formula effectively deletes the participation element."

I have prepared the rules this year with practically no changes from last year and with the incoming FCM in mind. I will be handing the reins of appointment over to him with a copy of the references quoted, previous details provided to the Federal Council on this subject and a strong recommendation that the proposal should be implemented and applied by him to the 1987 Remembrance Day Contest.

JOHN MOYLE MEMORIAL FIELD DAY CONTEST

I quote directly from my recommendations.

"That this be an "HF ONLY" contest.

"This was the original concept for the National Field Day Contest. It is interesting to note that this approach is adopted by quite a number of other national societies. VHF was added and recent evidence is that VHF operation does not attract a great deal of interest. For 1985 it was deleted as a separate section with not much comment being received. 1986 saw an attempt to encourage VHF participation with distance multipliers applied. The present rules seem biased towards VHF operation insofar as scoring is concerned. Thus a genuine attempt to improve the contest has resulted in an imbalance.

"See also the Discussion Paper, recommendations regarding Ross Hull Memorial VHF/UHF Contest and letter from Geelong Amateur Radio Club from *Amateur Radio* April 1987 issue."

The decision of the Working Party was minuted as follows:

"John Moyle Field Day — create two sections HF and VHF/UHF."

It appears that this decision goes part way towards adopting the recommendation made. It virtually means that TWO contests will be run. One, an HF Field Day Contest and the other a VHF/UHF Field Day Contest. At this stage, I am somewhat still surprised, as the evidence provided to anyone who has looked properly at the subject is that there appears to be little interest in VHF field day operation as such. This proposal now really means that there will be at least 40 separate sections in the John Moyle Memorial Field Day Contest. You find that surprising? Well, they will be sections (a) to (j) inclusive for HF six-hour Division, 24-hour Division and VHF six-hour and 24-hour Divisions.

I will venture to say at this stage that this seems to me to be somewhat ridiculous, however I provide this information to allow members to be able to discuss same, provide their comment and also to put the details into print in a formal fashion for the guidance of our new FCM.

ROSS HULL MEMORIAL VHF/UHF CONTEST

My recommendation to the Convention was "That this contest be abandoned in its present form and that it be replaced with a VHF/UHF Field Day Contest bearing the Ross Hull name."

I also stated "See Discussion Paper, Notes in *Amateur Radio* April 1987 issue and remarks from the 1986 FCM Annual Report."

The Ross Hull Contest has had an incredible history of problems going back for many years. FCM after FCM has tried to come to grips with the problems of such a contest with little success.

It would seem that the results of this contest have been dependent on such as a prime location under one set of rules, eg Kerry VK5SU, when he was located at Ceduna in a prime geographical location for long distance six- metre propagation and won it easily against all comers for several years before he transferred out, or under more recent rules whether or not you had equipment and specialised in VHF/UHF/Microwave bands up as far as you could go. In the latter case there would be only several stations in Australia who could hope to win the contest. In other words, it became an "elitist" contest.

Now, I do not wish any of you to think that I thus decry the efforts of any of our "VHF/UHF and above" enthusiasts. In fact, I give them great credit for their dedication to a particular area of amateur radio activity. I do not believe though, that contesting and experimentation necessarily go hand in hand, nor that contests should be such as to obviously restrict the number of operators who could enter with a reasonable chance of success.

I have received a few letters on the subject which indicate that those writing seem to have only their own outlook on the matter. No one has come up with any other suggestions which would help to expand our ideas and horizons and encourage an increase in participation in the Ross Hull Contest.

I did circulate a "Discussion Paper" to all Divisions in May, 1986, however I received the courtesy of a reply from only ONE of the Divisions. That is really how much interest there is.

I must acknowledge the great help that Eric VK5LP has been to me as, without Eric wishing for any kudos, he has been most instrumental in making proposals to try and breathe some life back into the contest. Between us, I could rightly claim that we have given the Ross Hull Contest more publicity than it has received in ages. We have tried quite a few different approaches, all to no avail.

I again wish to point out in **no uncertain terms** that the measure of success of a contest can only be shown by the numbers of entrants in the contest. That applies no matter how many people claim that they gave out numbers. **If they did not put in a log they cannot be counted.** Some people would claim otherwise, however I would ask where is their proof? Such an approach as adopted by these persons is just woolly thinking and I venture to suggest that they have not really had too much to do with organising contests.

The Convention answer to my recommendations was "Change scoring to locator squares — Maidenhead System — create all band experimenters and limited bands contesters section. Adjust timing to commence Boxing Day for approximately three weeks."

My Comment: Locator Squares approach does not answer the problems. It is perhaps fine for Award purposes. How do Locator Squares provide an answer to scoring anyway? All band experimenters and limited bands contesters are virtually what we have had with Eric and myself trying to tackle the problem. This has not worked. (See log entries for the last several years). I have no idea just how well Boxing Day for three weeks will go down with most people. Many suggestions up to this point indicate that the Ross Hull Contest always ran for too long.

Over to you for comment and I am sorry that I just have to drop this one in the lap of my successor.

VK NOVICE CONTEST

Don VK5NOD, has done a great job in this contest for quite a number of years. I respect his efforts and I know that he will understand my approach as he is always a great guy to make contact with.

My recommendations read "That incoming FCM consider a change of rules to restrict the number of times a station may consecutively be awarded the trophy.

"An excellent effort has been put up by VK5NOD in winning this contest for the last three years. It may be considered undesirable should this station have further consecutive wins."

Now again, let no one think that I am having a shot at Don VK5NOD. There is, however, precedent for such suggestion. In quite a few of the large international contests there are provisos which follow the lines proposed. I surely think that it is only human nature for people to say in the situation as presented that there is no point in them entering a contest if the same person is going to continue to receive the trophy.

I say this without fear or favour, and leave you to judge just what is the best and fairest approach.

I would also say to Don, "Go to it mate, and all the best to you." The rest of my report was of small event, so I will leave the subject of the Federal Convention at this point.

Recent copy received from Frank W1WY, provides the announcement that Katashi Nose KH6IJ, has been elected to the "Contest Hall of Fame." This is of course a great honour.

In determining eligibility, the Contest Hall of Fame Committee uses the following parameters in considering their decision. The nominees should have made extraordinary and unselfish contribution to the sport of contesting, often at great personal sacrifice of time and resources. They must be amateurs who have given much to the enjoyment of the sport by others over a long period of time. Examples of activities which meet these criteria include the engineering, maintenance and operating of leading-edge contest stations; the planning and support of contest expeditions (DXpeditions coinciding with major DX contests); and the conception, development and administration of major contests.

Katashi Nose, was first licensed in 1932 as K6CGK, while he was a junior at Honolulu's McKinley High School. In those early days, Hawaii was considered part of the US Sixth Call District and there was no KH6 prefix. His first rig used a 210A tube and was powered by a 45 volt battery. He called and answered CQs for the better part of six months without an answer, until he suddenly made consecutive contacts with W6AM, W6CUH and W6ENV. Nose had stumbled across the ARRL DX Contest, and he never forgot the thrill.

In 1934, Nose entered his own station in the ARRL DX Contest for the first time and finished in 12th place in Hawaii on CW. In 1935, he moved up to third place and over the next five years, became the man to beat, making the top score in Hawaii in four of those years. In 1935, he entered the ARRL Sweepstakes for the first time and was top score for his section on CW.

Prior to World War II, the contest we know today as the CW WW DX Contest was sponsored by CQ's predecessor publication *Radio Magazine* and was introduced in 1939 as the Radio World-Wide DX Contest. Unfortunately, there was only one contest before amateur radio was silenced for the duration of the war, but the first CW winner of that contest was Katashi Nose K6CGK, using a Vee beam and a four section 8JK. In that depression period, economics dictated that Katashi home-brew his equipment with whatever was available and he made his own capacitors using tinfoil from cigarette packets an waxed paper. His variable condensers were fashioned from refrigerator ice trays.

Nose has consistently been a "giver", not a taker, to amateur radio. He is the author of 30 technical articles in major amateur radio magazines, including contest related articles on subjects such as loading a tower on 160 metres, constructing home-brew rotating towers and making lightweight beams. He served as the President of the Honolulu Amateur Radio Club for several terms, was a charter member of the WARC-79 Advisory Committee, served on the ARRL Contest Advisory Committee. representing all the US Sixth

Call Area for two terms, and was advisor to the University of Hawaii Amateur Radio Club.

In the mid-1950s, Nose was selected by the Shell Foundation as one of the 100 most outstanding high school teachers in the US. Later he moved up to the University of Hawaii as a Professor of Electrical Engineering. He is now retired.

No story about Katashi Nose is complete without mention of his loyal and devoted wife, Matsuyo, without whose help and encouragement his marvellous record would not have been possible.

There would be very few amateurs who enter in the major contests who have not had KH6IJ appear in their logs. The KH6 multiplier is guaranteed, coming from a well-engineered and maintained contest station. You may wonder whether his location is on a remote mountain top, but no, his QTH is on a 5000 square-foot city lot. This man is an inspiration to each of us who operates from an urban environment.

I wish to acknowledge the source of this story from the material provided to me by Frank W1WY, which material is also published in *CQ* magazine.

Well, I have provided probably the largest amount of copy I have ever submitted to *Amateur Radio* for any issue. Next month, should be my final submission, in this capacity, to the magazine and I am currently in the situation of conversing with our new FCM who should introduce himself to you in the September issue. We are talking to each other and we both hope that the changeover will be smooth. Logs for the VK Novice COntest will still be received by me. I will carry out the work on them and then forward the results to the FCM for publication. I will also take care of the certificates for that contest.

Following are the rules for the All Asian DX Contest and the Venezuelan Contest. Again, I did not receive the rules for the All Asian Contest in time for publication for the Phone Section.

So, that is all for now. Hope to see you in the Remembrance Day Contest. Good luck and 73, de Ian VK5QX.

28th ALL ASIAN DX CONTEST — 1987

The purpose of this contest is to enhance the activity of radio amateurs in Asia and to establish as many contacts as possible during the contest periods between Asian and non-Asian stations. It is supported by the Ministry of Posts and Telecommunication of Japan.

Contest Period:

Phone — 48 hours from 0000 UTC June 20, 1987 to 2400 UTC June 22, 1987.

CW — 48 hours from 0000 UTC August 22, 1987 to 2400 UTC August 23, 1987.

Bands: Amateur bands under 30 MHz.

Entry Classification:

1 Single operator, 1.9 MHz band (CW-only).

2 Single operator, 3.5 MHz band (including 3.8 MHz band, and so forth on).

3 Single operator, 7 MHz band.

4 Single operator, 14 MHz band.

5 Single operator, 21 MHz band.

6 Single operator, 28 MHz band.

7 Single operator, Multi-band.

8 Multi-operator, Multi-band.

Power, Type of Emission and Frequencies: Within the limits of own station licence.

Contest Call: Phone . . . CQ Asia. CW . . . CQ AA.

Exchange:

For OM stations — RS(T) report plus two figures denoting operator's age.

For YL stations — RS(T) report plus two figures 00

Restriction on the Contest:

No contact on cross-band.

For participants of single operator's entry — transmitting two signals or more at the same time, including cases of different bands is not permitted.

For participants of multi-operator's entry — transmitting two signals or more at the same time within the same band, except in case of different bands, is not permitted.

Point and Multiplier:

Contacts among Asian stations and among non-Asian stations will neither count as a point or a multiplier.

For non-Asian stations — a perfect contact with Asian stations (excluding US auxiliary military radio stations in the Far East, Japan) will be counted as follows for point scores: *1.9 MHz band . . . 3 points; 3.5 MHz band . . . 2 points; other bands . . . 1 point.*

Multipliers are the number of different **Asian Prefixes** worked on each band, according to the WPX Contest rules. Eg JS1ABC/7 will count for prefix JS7.

Scoring: The sum of the contact points on each band times the sum of the multipliers on each band.

Instructions on the Summary and Log Sheet

Summary sheet — write in your declaration and signature to give evidence of following the rules of the contest, together with your DXCC country, call sign, entry class, multiplier by band, point by band and total score.

Log sheets — use a separate sheet for each band and keep all times in UTC. Fill in the blanks of multiplier by countries or prefixes only the first time on each band.

Awards: Certificates will be awarded to the highest scorers in each category on each continent and medals will be awarded to highest scorer in the single operator multi-band and multi-operator multi-band sections.

Reporting: Submit a summary sheet and logs of only one classification to JARL, All Asia DX Contest, PO Box 377 Tokyo Central, Japan. Please indicate phone or CW on the envelope. Envelopes should be postmarked no later than July 30, for the phone-section and September 30, 1987 for CW.

Disqualification: Violation of the contest rules, false statements in the report or taking points from duplicate contact on the same band in excess of two percent by the total will be deemed reasons for disqualification.

Announcement of Results: Phone about February 1988 and CW about April 1988.

Countries List of Asia: A4, A5, A6, A7, A9, AP, BV, BY, EP, HL/HM, HS, HZ/7Z, JA-JS/7J, JD1 (Ogasawara Island), JT, JY, OD, S2, TA2-8, UA/UN/UV/UW, UZ9-0 (AsRSFSR), UD, UF, UG, UH, UI, UJ, UL, UM, VS6, VU, VU (Andaman & Nicobar Islands), VU (Laccadive Island), XU, XW, XX9, XZ, YA, YI, YK, ZC4, 1S (Spratly Island), 3W/XV, 4S, 4W, 4X/4Z, 5B4, 7O (S Yemen), 8Q, 9K, 9M2 (W Malaysia), 9N, 9V (Singapore), J2/A (Abu Ail)

VENEZUELAN CONTEST

Times: 0000 UTC Saturday to 2400 UTC Sunday.
Phone: July 4-5, 1987. CW: July 25-26, 1987.

This is the 26th yearly contest celebrating Venezuela's Independence. It is a world-wide type contest; therefore do not confine your activity to working YVs only. Use all six HF bands, 10 through to 160 metres. There are four classes: Single Operator, Single and All-band and Multi-operator single and Multi-transmitter.

EXCHANGE: RS(T) plus a QSO number starting with 001.

POINTS: Contacts between stations in different countries, two points. Between stations in the same country zero points, but permitted for multiplier credit.

MULTIPLIER: One for each YV call area, and each country (including own) worked on each band.

FINAL SCORE: Total QSO points from all bands multiplied by the sum of the multiplier from each band.

AWARDS: A plaque to the highest scorer in each class. Medals to the highest scoring single operator in each continent and the Bolivian countries (Bolivia, Colombia, Ecuador, Panama, Peru). Certificates to stations in the Americas working 15 YV stations and 10 different countries: and Asia and Oceania stations working five YVs and 10 countries. Use a separate log sheet for each band, and a summary sheet showing the scoring, your name and address (in block letters), and the usual signed declaration. It is requested that all award applicants include a remittance of US$2 or its equivalent in IRCs. Mailing deadline is September 15, 1987, for phone entries and October 15, 1987, for CW. Post to: Radio Club Venezolano, PO Box 2285, Caracas, 1010-A Venezuela.

THE SUNSHINE STATE JACK FILES MEMORIAL CONTEST

All licenced operators throughout the world are invited to participate. The contest is also open to shortwave listeners. The aim of the contest is to perpetuate the memory of the late Jack Files and to enable amateurs to work stations for the Worked All Queensland Award, and other awards issued by amateur radio clubs in Queensland.

This years contest commences on Saturday, July 18, 0830-1230 UTC and Saturday/Sunday, July 18-19, from 2330-0130 UTC.

Divisions and Sections —

1. Stations within VK4:
   (a) Transmit all bands.
   (b) Transmit HF only.
   (c) Transmit VHF/UHF only.
   (d) Transmit QRP only.
   (e) Club stations.
2. Stations outside VK4:
   (a) Transmit all bands.
3. Shortwave Listeners:
   (a) Receive all bands.

Suggested Frequencies —

PHONE	CW
3.570- 3.590 MHz	3.525- 3.535 MHz
7.100- 7.120 MHz	7.010- 7.020 MHz
14.180-14.200 MHz	14.050-14.060 MHz
21.180-28.520 MHz	21.100-21.150 MHz
28.480-28.520 MHz	28.100-28.150 MHz

Operation — Phone and CW operation.

Each station may be counted twice on each band for credit; once on phone and once on CW.

All contacts must be made in accordance with operator and station licence requirements. No net or cross-mode contacts will be valid for scoring purposes.

Station may be worked repeatedly on all bands and modes provided that one hour has elapsed since the previous contact on that band and mode.

Procedure —

Phone: call CQ Jack Files Contest.
CW: call CQ Test Jack Files.

Exchanges — The usual RS/T together with serial number commencing at 001.

Scoring — For scoring on HF, VK4 is divided into two zones. The dividing line being the Tropic of Capricorn. On all bands, a bonus of 10 points may be claimed for the first contact to a Queensland City or Shire on each band during both, **not** each session. Also, a bonus of 10 points may be scored for each contact with a club station. Double points may be claimed for CW contacts, but **not** double bonus points.

(a) Stations in VK4:
HF contacts within the same zone — three points. Contacts with stations in opposite zone — five points. Contacts with stations outside VK4 — one point.

(b) Stations outside VK4:
HF, VHF and UHF contacts with VK4 stations — one point. Bonus points apply. No points for contacts with stations outside VK4.

(c) Shortwave Listeners:
Three points for each VK4 station logged.

Logs — Must show full name, call sign, and address of the operator, section entered, and show the total number of points being claimed. Logs submitted must be legible and signed by the contestant. Logs will **not** be returned and the decision of the Contest Manager will be final.

Logs to be received by the Contest Manager, Joe Ackerman, 5 Koomooloo Court, Mermaid Waters, Qld. 4218, not later that August 7, 1987.

Trophies will be awarded to the highest scorer in each section. However, should a contestant receive an award in one section they will not be eligible for an award in any other section.

—Contributed by Joe Ackerman VK4AIX, Qld Contest Manager

THE ADELAIDE HILLS AMATEUR RADIO SOCIETY, INC NATIONAL CW AND PHONE SPRINTS

The Adelaide Hills Amateur Radio Society Inc, is delighted to announce the second running of the National Sprints, a pair of "quickie" contests for CW and phone operators, to be held during July 1987. The rules for the July Sprints will be similar to those for last November, the only differences being:

The Sprints are open to all operators in VK, ZL and P2 call areas.

The time period has been shortened to one hour.

Only VK, ZL and P2 contacts can be scored.

The National Sprints are endorsed and supported by the South Australian Division of the Wireless Institute of Australia, which will provide certificates and trophies.

The reasoning behind the National Sprints is this — there are too many "big" contests each year; they require a lot of time and the rules are complex, thus discouraging many operators from participating. The National Sprints are short, sharp and simple, requiring a minimum of time while providing a significant operating challenge.

Object of the Sprints

The operator's basic goal in the Sprints is to make as many contacts as possible (without duplication) during an hour of operation on a single band. Any contact with a VK, ZL or P2 station on 80 metres during the Contest Period can be counted, but a station may only be claimed once.

Eligibility

The National Sprints are open to any licensed amateur or group of amateurs using a single call sign (eg club stations), anywhere in Australasia (VK, ZL and P2 call areas).

Contest Period

1200-1300 UTC July 11, 1987 (CW Only)
1200-1300 UTC July 18, 1987 (Any legal phone mode)

Frequencies

For the CW Sprint, frequencies between 3.500 and 3.700 MHz may be used.
For the Phone Sprint, frequencies between 3.535 and 3.700 MHz may be used.

Regulations

Irrespective of any provision contained in these rules, operators are reminded that they must operate in accordance with the terms and conditions of their respective licenses and applicable regulations.

CONTEST CALLS

CQ Sprint or CQ Test or CQ Contest.

EXCHANGES

Minimum exchange for a valid contact will consist of signal report and a three digit serial number. The serial number may start at any number between 001 and 999, but will revert to 001 if 999 has been reached.

Logs

Contest logs must show for each contact the time (UTC), call sign of station worked, report/serial number given and report/serial number received. Each log must be accompanied by a cover sheet showing the date and name of the Sprint (CW or Phone), the total number of contacts claimed, and a statement that the operator has abided by the rules of the contest, signed by the operator/s. Any special conditions such as QRP or mobile operation should be mentioned in the statement.

Logs are to be in the hands of the Society no later than Friday, August 14, 1987, and can be addressed to:
National CW (or Phone) Sprint Manager, c/- AHARS, PO Box 401, Blackwood, SA. 5051.

Awards

Certificates will be awarded to the highest scorer in each VK call area, ZL and P2 for both the CW and the Phone Sprints. Trophies will be awarded to the outright winner of each Sprint.

Certificates may be awarded to other operators whose performance was, in the opinion of the organisers, exemplary.

Any entry which is patently in violation of the rules or spirit of the Sprints, or which contains an excessive number of claimed duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed), may be disqualified.

The decisions of the Society in respect of the interpretation of these rules, granting of awards, or disqualifications will be final.

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Thought for the Month

Nothing is impossible to a man who hasn't got to do it himself.

CONFIDENCE WORKSHOP

A VK6 Pre-examination Innovation

Harry Atkinson VK6WZ
5/97 Railway Parade, Mount Lawley, WA. 6050

Practical Morse Key Demonstration. From left: Dave VK6IW, Bart VK6CH, Barrie VK6AF, Larry VK6ZLW, Malcolm VK6LC and Glen VK6KY.
Photograph courtesy Andrew Baumanis VK6WB

Bruce Hedland-Thomas VK6OO, WA Divisional President speaking at the WIA "Confidence" Workshop held on Saturday, April 11. VK6 Practice Morse Co-ordinator, Malcolm Johnson VK6LC, had spent weeks organising a pre-AOCP examination exercise designed to instill confidence in candidates, give them practical experience in an environment as much like the examination room as possible and place special emphasis on Morse sending — something which hitherto had been more or less left to each candidate's own devices.

Bruce, who had acted as chairman throughout the proceedings, outlined what Malcolm had planned, what was to happen and named the lecturers, demonstrators and other volunteers.

There were 21 student participants from the young to the seniors and a volunteer staff of 19. The latter included off-duty DOC staff, rostered operators from the on-air VK6WIA practice sessions and various office- bearers and council members from the Division.

The hall was set out with adequate tables and chairs, PA and recording/replay equipment, plenty of Morse keys and sufficient 'kits' for each student to have one. . .the kits providing writing paper for the various tests and an authoritative paper (illustrated) on how to learn and study code sending and receiving.

Students came from all over the Perth metropolitan area, as well as from Fremantle, Australind, Marangaroo and Kelmscott. Each demonstrator took a particular aspect of code and dealt with it clearly and concisely using taped signals for receiving and various hand keys for sending. In sending, the correct use of the commencement signal and end of message signal and the right and wrong way to correct a sending mistake were demonstrated.

DOC officers were at great pains to point out that the Department was not staffed with orgres, nor was it in the business of failing people just for the fun of it! It was obvious from comment afterwards that candidates found it a novel and heartening experience to meet with examiners in a casual, off-duty atmosphere while still learning valuable points about the code. It seems that

"You're all very special people here today. . .because you're taking part in something which is unique in Western Australia. Nothing like this workshop has ever happened before."

Workshop 10 WPM Receiving Test.
Photograph courtesy Andrew Baumanis VK6WB

when these candidates meet Glen and Barry again at the DOC examinations in May they will feel at ease with people they have already met and with whom they have swapped experiences and problems.

To some OTs present it came as a shock to hear an examiner say he had known cases of examination candidates who had never previously held a Morse key until they reached the examination room!

Excellent advice was given on the importance of setting the key to one's own choice of gap and tension before starting the sending test. . .and — when receiving — the need to keep going and not stop writing to puzzle over a letter missed, and the wisdom of using block letters if one's handwriting is not the best.

Candidates were advised to look on the Morse receiving examination as a test of accuracy, not a test of comprehension.

The program began at 9 am and at the conclusion of the three-and-a-half hour workshop many of those present said it had given them an entirely new outlook on the Morse side of the AOCP examination — and a very changed view of DOC staff! Praise was bestowed on VK6LC, the WIA and DOC for a really professional exercise. These confidence-building workshops could well become a regular feature in VK6.

Thought for the Month

Beware of half truths — you may have the wrong half.

AMATEUR BARGAINS • AMATEUR BARC

Huge Amateur $avings all this month!!

FREE! With every Hand-Held sold this month we're giving away a FREE Welz Power Meter valued at $29! Cat Q-1343

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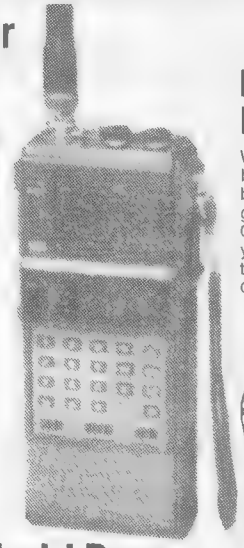
You won't believe your luck! The incredible Yaesu FT-209RH 2 metre hand-held is now better value than ever. With every FT-209RH sold we're giving away a FREE battery valued at $98.90!! Yes, you can now have all the features and quality of Yaesu at the lowest price ever! With up to 5 watt output (3.7W with FNB3 battery) 10 memories (it even remembers the repeater split), keyboard entry for everything, huge range of scanning options and much, much more! Cat D-3503

FREE!!! FNB-3 NiCad Battery valued at $98.90 Cat D-3506

$599



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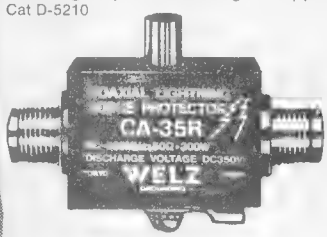

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Here's value! The MMB-21 Mobile Bracket to suit the FT-203/209/709 transceivers — and it's ½ PRICE!! Saves your equipment slopping all over the car and saves you money to boot. But hurry, they can't last forever at this LOW price! Cat D-3501

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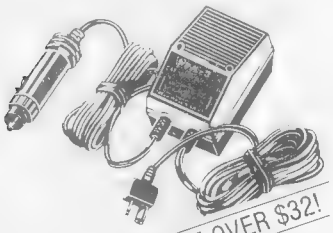
Just what your mobile needs! The PA-3 Car Charger is intended for operating 10.8 volt transceivers from a car cigarette lighter socket. Includes charging as well as power and now it's BELOW COST!! Suits FNB-3 pack as well as older style transceivers. Cat D-2899



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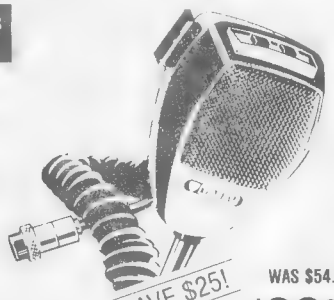

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LINTON-HARRISON LICENCE RESTRUCTURE PROPOSALS

This document follows on from the discussion paper: *Amateur Radio — Future Direction* co-authored by Jim Linton VK3PC and Roger Harrison VK2ZTB, in December 1985. Like that document, its purpose is to promote discussion. It does not necessarily reflect the official viewpoint of the WIA or any Division of the WIA.

The need for restructure of Australia's licence system has been ignored by the 1987 WIA Federal Convention proposal to give Novices the entire two metre (144-148 MHz) band.

That proposal, generated at the Convention, and supported by Federal Councillors from all Divisions except VK1 arose out of two considerations.

The first was the desirable "common band" for all grade of licence.

The second, which was the major factor in intense lobbying at the Convention, was the impact of the JA/VK reciprocal licensing agreement.

That agreement, effective from February, has consequences for the Novice licence, and Australia's licence restructure generally.

Japan has a long-established Telephony licence, with an exam of a lower level than the Australian Novice and no telegraphy exam. The JA Telephony licensees operate on low power on HF bands other than 10 and 14 MHz.

Under the JA/VK reciprocal agreement such JA licensees visiting Australia have been given permission to use FM (10 watts) on all bands 50 MHz and above.

How the agreement was reached, the WIA's involvement, and the full story about that exercise is unclear. But what is plain is that the agreement now has a direct influence on the licence structure in Australia.

The fact is that should an Australian Novice licensee take the Department of Communications to the Administrative Appeals Tribunal on equal opportunity grounds, DOC could not defend the denial of Australian Novices telephony privileges on all bands 50 MHz and above. It has brought about a de-facto Telephony licence in Australia.

In hindsight a two-year tenure should have been placed on the JA Telephony licensees operating in Australia under the reciprocal agreement. It is essential that the agreement be re-negotiated to include a tenure.

To attract the bottom rung beginner interested in radio and to expose them to the broad scope of the hobby of amateur radio, a Telephony licence should be introduced in Australia.

The theory syllabus for this licence could include the necessary elements of basic electricity, magnetism, radio frequency generation, modulation, propagation and interference.

This grade of licence could have FM telephony privileges on 52.500-54.000 MHz, and a segment on 70 cm, at a maximum power of 10 watts.

The Australian Telephony licence must have a limited tenure of two years.

An integral part of restructuring the licence system is restoration of the Novice licence syllabus and question bank pool. It has become clear that the Novice licence with its recently revised syllabus, no longer adheres to its original intention or definition.

The Novice licence should be given additional privileges identical to the Telephony licence on six metres and 70 cm, but with a maximum power output of 30 watts — plus SSB on the segment 52.030-52.200 MHz.

The enhancement for the Novice proposed above are designed to be greater than those given to JA Telephony licensees under the reciprocal agreement, meet the common band requirement, yet are not a dis-incentive to upgrade by giving Novices the entire two-metre band.

A further aspect of licence restructure should be the introduction of an Intermediate licence, to serve two purposes:
firstly to bridge the gap between the Novice and AOCP/Limited licences, and secondly to attract those people who increasingly these days gain an interest in electronics through computers and computing. It is an essential step if the Amateur Radio Service is to survive by being more attractive to people of all ages.

The Intermediate licence would require a candidate to have passed the Novice theory, plus a supplementary exam on elementary digital subjects and FM. It would have the six metre privileges afforded to the Novice licence, plus 70 cm segments 433-435 and 438-440 MHz covering FM simplex FM repeaters and digital modes, but selected to avoid the satellite band.

A candidate who passed the Intermediate theory exam/s and the Novice telegraphy exams, would have the Novice HF privileges, plus permission to use RTTY, AMTOR, ASCII, FAX, SSTV and Packet on the segment 28.200-28.300 MHz.

The data mode privileges would enable Australian Intermediate licensees to communicate with USA Novices who have those privileges on that band segment.

Being examined on FM, the Intermediate licensees should either be permitted into the FM international segment 29.000-29.700 MHz and/or FM repeaters be allowed in Australia within the current Novice band.

Intermediate licensees should have access to the 1.200 GHz band in the future.

Holders of the Combined Novice/Limited (K-call) licence would automatically be given the digital and other HF privileges of the Intermediate licence.

The above restructure of Australia's licence system would make the hobby appropriate to today's technology and improve its attractiveness to potential radio amateurs. It sets out new entry points into the hobby, and a logical upgrading path leading to increased numbers of licensees with AOCP and Limited licence qualifications.

The particular privileges proposed in this document represent a balance between a number of conflicting considerations including the consequences of the JA/VK reciprocal agreement. These privileges are intended to encourage upgrading by those who have the motive to attain the skills.

The aim is to give newcomers an attainable entry into the hobby. Later the Intermediate licence gives a taste of digital modes, encouraging further upgrading.

LINTON-HARRISON LICENCE RESTRUCTURE CHART

Unrestricted (AOCP)	All bands and modes. Full power.
Combined (K-Call)	Limited privileges plus Intermediate HF privileges.
Limited	All bands 50 MHz and above. No mode restrictions. Full power.
Intermediate (without CW)	Novice six and two metres, plus FM and digital on 70 cm.
Intermediate (with CW)	As above plus Novice HF bands, 10 metre digital and FM.
Novice	HF 80, 15 and 10 metres. Six metre SSB and FM. 70 cm FM. VHF/UHF power 30 watts.
Telephony (Two year tenure)	Six metres, 70 cm, 10 watts FM.

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BEACONS AND REPEATERS

Tim Mills VK2ZTM
FTAC BEACON CO-ORDINATOR
PO Box 204, Willoughby, NSW. 2068

This month I will briefly report on two items from the recent Federal Convention.

A draft of the Beacon Policy Paper was presented. There is further work to be done during this year, particularly in the microwave segments. Input is still required from those with an interest in planning the orderly operation of the various beacon systems. By now most beacon groups should have received a copy of the draft report. Anyone interested in seeing the report should contact your local Federal Councillor or you may write to the address shown above for a copy to be sent to you.

The agenda item concerning pager interference to the top end of the two metre band, in particular, was discussed and has been referred to FTAC for investigation and reporting back to the Council. This subject will be expanded in detail in this column in a later issue, but it is an area requiring considerable input from both amateurs and repeater groups.

There is concern from time to time about operation on the old two metre channel known as "B" — 146.000 — and its effect on the adjacent satellite segment. The subject was first raised at the Albury repeater meeting in July 1972, where it was decided that its use as a net frequency should be discouraged. Some of the satellite systems have used frequencies which fall close to the sidebands of a transmission on 146.000 MHz. This frequency has not been included in any recently published band plans. The international Amateur Satellite Service Sub-band extends from 145.800 to 146.000 MHz, so if a guard band is included it extends from about 145.750 MHz as a lower limit to 146.010 MHz as the higher limit. The first active frequency above this is the input to repeater 6625 which is on 146.025 MHz.

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Roger Harrison's

Australian Electronics Monthly

Incorporating Elektor Electronics

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These were some of the features —

DIGITAL COMMUNICATIONS
Morse was first, radioteletype followed, and now we have packet radio! Here's a rundown on the various 'digital' communications modes and techniques and a guide to getting on the air.

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How's DX?

Ken McLachlan VK3AH
Box 39, Mooroolbark, Vic. 3138

THE TIME HAS COME

Regrettably the time has come that I have personally found that writing this column is no longer a challenge. This is due to a number of factors.

The six years that I have had the honour of collating the material and writing many thousands of words has been a very gratifying experience. There has also been a thrill from the hundreds of letters of support, comments and notes of thanks received.

At times it has not been easy to foresee future DX, as I am not a reliable astrologer and even if I were, it would be a hazardous task.

Over the period I have made many friends from all continents and my sincere thanks go to those that have contributed and supported my efforts, including our family, particularly my wife Bett. It is hoped that the readers have gained some interest and lots of new countries. My sincere thanks to three editors of the magazine over the period, all contributors and to every reader. Thanks again and good future DXing in Sunspot Cycle 22, which is just around the corner by my reckoning. Nevertheless, the DX is always there, if you are persistent.

I have commenced one article for this magazine concerning commercial movie theatre projectionists, past and present who are amateurs. I have received a lot of input and still a lot of research is required, but it will appear later this year or early next year depending on the Editor's indulgence.

AUSTRALIAN DX ACHIEVEMENT AWARD

The late Hugh Spence VK6FS, bequeathed a sum of money to the VK6 WIA Division on his untimely death in 1984. The VK6 Council has decided to create three perpetual annual DX Achievement Awards in the memory of an amateur who enjoyed chasing the elusive DX station and probably gained more satisfaction in assisting some other amateur to gain a new country, than receiving the QSL himself.

The award in Hugh's memory will be known as the *VK DX Achievers Award* and is open to all VK amateurs who submit proof of having worked and confirmed:

(1) 100 DXCC Countries.
(2) 150 DXCC Countries.
(3) 200 DXCC Countries.

on any mode or frequency except the WARC Bands and within the terms of their licence during one calendar year commencing on January 1, 1988, Australia's Bi-Centennial year.

The three awards consist of one years free membership to the recipients WIA Division plus an engraved plaque to commemorate the operators prowess.

Watch for further details in *Amateur Radio* and it is felt that this award is quite fitting to the memory of Hugh, a gentleman of unblemished integrity whom it was a pleasure to know and call a friend, which he was to so many.

A MEANINGFUL REPORT

The mailbox has been full of letters regarding my recent remarks about dubious reports. For once no one has dissented from my views, and that is quite refreshing. I am still amazed that amateurs from all continents still continue with the 599 or 59 report and consistently ask for repeats during the QSO. Thanks to all readers that took the trouble to write and concur with my thoughts.

ST PETER AND ST PAUL'S ROCKS

From all reports, not many were able to subscribe to their State's lottery as it appears that only three or four recorded the last expedition's call sign in their log. Ladies and gentlemen, all I can say is better luck next time and it may be a while unfortunately, as it is quite a costly exercise to place a 'crew' in that area and the economic down-trend is applicable to all continents unfortunately.

CONFUSION

Please do not send any QSLs to Mary Ann WA3HUP. for AP9P. This 'con-merchant' has caused Mary Ann some problems as she has never heard of him or her let alone discussed acting as the stations QSL Manager. Never mind Mary Ann, every DXer throughout the world knows your policies and track record which is unsurpassable.

GOOD NEWS FROM BANGLADESH

It appears that the authorities in Bangladesh are reviewing the licensing of nationals during this year. This must be very heartening to the radio-orientated in that country and let us all hope that it will not be too long before some genuine S2s appear in the logs. One will have to watch out for the unscrupulous who will pirate the prefix just to gain a 'pile-up' on their frequency.

BEST SHACK PICTURE

The photograph depicted this issue is the shack of Gil VK3CQ. This contest will be judged by Greg and his staff at GFS Electronics, who have kindly donated a magnificent prize for the winner.

Ironically I am going to bequeath this segment of my notes to Gil, who hasn't been advised of the fact as yet. I am sure Gil will carry it on and please send all pictures to him and whilst doing so, participants may care to encourage him with some ideas on his excellent column of *Pounding Brass*.

Gil's shack is less than a metre wide, the desk is just over a fraction of a metre deep, has an area approximating just in excess of one square metre in floor area and to save on coaxial cable it is nearly five metres above ground, in an area above a stair-well that Gil has added a window to and lined for comfort.

The key to the photograph — on the left of the shack is a 'long wire' tuner, which any of six switched antennas can be selected for the HF bands. Also this is the termination of two two-metre and a 432 MHz coaxial cable fed antennas. The right wall occupies the output of 12 amperes at 12 volts from batteries and solar cells.

Other equipment on the table area consists of a UHF FM coupled to an antenna directed at the Mount Stanley Repeater, a 35 watt two-metre receiver. Also pictured is an IC251A and IC751A of course with a CW Filter fitted.

Gil really knows how to fit a lot of equipment in to a small space.

GOING QRT

Peter 9V1TL, will be missed when he goes QRT this month. Peter has been a stalwart to the hobby on all bands but particularly to 20 metres and the South East Asia Net on 14.320 MHz at 1200 UTC which is QRV each day of the year. Every good wish from all who have received assistance from you over the years Peter, and please 'pop up' from your new QTH soon.

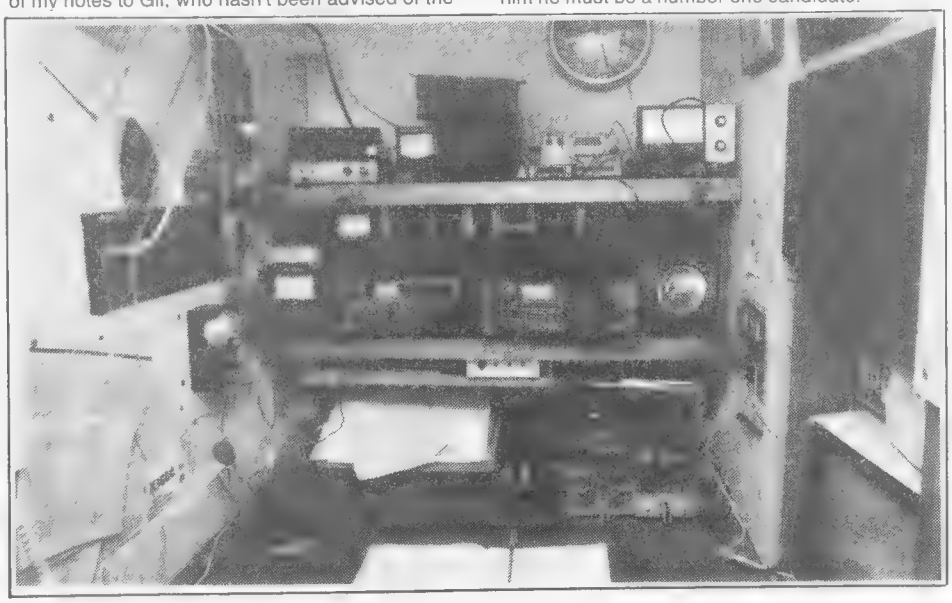
THE USER PAYS CONCEPT! ! !

The saying is almost worn out, but it has become a catch line in other countries apart from Australia. The gentleman that created it should be proud, as it appears a number of countries have used the same approach with their radio licensing fees. Near neighbours, please do not blame us and remember we were hit with the salvo first.

UNIQUE YES — VALID NO

It appears that Jerry, operator of 4W1AA, got 'verbal' permission to operate 'outside of business hours' from the authorities and thought that the suffix of 'AA' was as good as any for the first amateur operation from that country for over a decade. Does Don Search W3AZD, Manager at the ARRL DXCC Desk suffer from ulcers? With all the contentious items incessantly placed before him he must be a number one candidate.

The late Hugh Spence VK6FS, with his devoted companion Reece.



THE VALID ONES

The good news is that 5A0A, A61AA, A61AB, T50DX, VU4APR/NRO and XF4DX cards are all 'true-blue' and acceptable for DXCC. Now for the bad news — A51PN (from date unknown as my contact with Pradhan was accepted), A6XB, A6XL, 5U7LD and stations signing from the following countries Afghanistan, Angola, Burma, Ethiopia, Mozambique and South Yemen are not. There may be a further update sooner than one expects.

THE WARC BANDS

The member societies of the following countries have notified the International IARU Secretariat of the availability of new bands for their use.

10 MHZ BAND ————————

10.100 to 10.150 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina (10.1005-10.103, 10.119-10.1215 and 10.1435-10.14650), Australia (less 10.126-10.134 and 10.1375-10.1455), Austria, Bahamas, Belize, Bermuda, Botswana, Brunei, Canada, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark, Djibouti, Dominica, El Salvador, Faroe Islands, Fiji, France, Gabon, German Democratic Republic, Federal Republic of Germany, Gibraltar, Greece, Grenada, Honduras, Hong Kong, Indonesia, Ireland, Israel, Italy, Japan, Republic of Korea, Kuwait, Luxembourg, Malaysia, Malta, Mauritius, Monaco, Montserrat, Netherlands, Netherlands Antilles, New Zealand (10.100-10.127 and 10.133-10.150), Nicaragua, Nigeria, Norway, Panama, Papua-New Guinea, Peru, Philippines, Portugal, San Marino, Senegal, Solomon Islands, South Africa, Spain (10.1075-10.1135), Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, USA, Vanuatu, Western Samoa, Yugoslavia and Zambia.

18 MHZ BAND ————————

18.068 to 18.168 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina (18.073-18.0765, 18.0835-18.0895, 18.0965-18.1085, 18.1215-18.149 and 18.1515-18.1675), Australia (less 18.071-18.079, 18.101-18.109, 18.121- 18.134, 18.141-18.149 and 18.156-18.164), Austria, Bahamas, Bahrain, Botswana, Brunei, Canada, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Denmark, Djibouti, El Salvador, Faroe Islands, France, Gabon, German Democratic Republic, Federal Republic of Germany, Gibraltar, Greece, Grenada, Honduras, India, Ireland, Israel, Italy, Kuwait, Luxembourg, Malaysia, Malta, Mauritius, Monaco (less 18.103-18.116, 18.129, 18.135 and 18.165), Montserrat, Netherlands, Netherlands Antilles, New Zealand (10.100- 10.127 and 10.133-10.150), Nicaragua, Nigeria, Norway, Oman, Panama, Peru, Portugal, San Marino, Senegal, South Africa, Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, Vanuatu, Yugoslavia and Zambia.

24 MHZ BAND ————————

24.890 to 24.990 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina, Australia (less 24.896-24.904), Austria, Bahrain, Botswana, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Denmark, Djibouti, El Salvador, Faroe Islands, France, Gabon, German Democratic Republic, Federal Republic of Germany, Grenada, Honduras, India, Indonesia, Ireland, Israel, Italy, Kuwait, Luxembourg, Malaysia, Mauritius, Monaco, Netherlands, Netherlands Antilles, Nigeria, Norway, Oman, Panama, Papua New Guinea, Peru, Portugal, San Marino, Senegal, South Africa, Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, USA, Vanuatu, Yugoslavia and Zambia.

Now is the chance to get those antennas in the air for these bands and when the new Solar Cycle commences you will be in business to notch up quite a few countries. They are not acceptable for DXCC, but it is quite a challenge. Who will be the first VK to make a 100 countries on each band? No cheating, that is 300 two-way contacts on the three bands.

(Thanks to *Region 3 News* — Number 23 — December 1986).

APOLOGIES

I was proved wrong, as were many other DX Editors, regarding the DL7FT/SV/A expedition by Frank. I didn't regard it as a legitimate expedition, neither did the Greek Radio Society. I apologise and congratulate you Frank on your persistence in convincing the ARRL DXCC Desk to accept your credentials. You have achieved something that the neighbours to the scene have been unable to do. It has been a long drawn out affair but through investigation by the ARRL, is typical of the credibility of the ARRL DXCC.

Now that one has been put to 'bed', when is the next operation going to occur and by whom?

TECHNIQUES OR BAD OPERATING

Some operators on the bands are complaining about 'bad signals' particularly from an area where 'home-brew' is a must, if one is going to get on the air.

Please politely tell the offending station that his or her signal is not Q5, or they are drifting and/or splattering or whatever is concerning you.

Most amateurs will accept the criticism in the spirit that it is made. Some will not but that is life. Please let us nurture the 'home-brewer' and assist. I, as many others have also heard, some terrible signals from all points of the globe, the majority using 'black boxes' that are being overdriven. We all had to have a first QSO and I know a VK3 who many years ago built a magnificent 40 metre transceiver and was not brave enough to put it on the air. He eventually did put a signal into the ether and it was very Q5, however he is one of many who are wary of placing a signal that is not Q5 in the spectrum. Is this one of the reasons that quite a few amateurs are reluctant to build and experiment? There are a considerable number of talkers across the bands that have never used a soldering iron or possess one, let alone those that even don't possess a multimeter.

RESOURCES GALORE FOR THE WEST

The VK6s who are interested in clubs are very lucky in having a Telecom Public Relations Resource Centre at their disposal. This centre loans free of charge videos, films, displays, even historical and modern telephones are available for that special demonstration.

Think how an amateur communications display promoting our hobby would be set off with these extras.

It is believed that quality brochures covering telecommunications in Australia are also available for such events. It has been said that the information available is quite unique and a source of knowledge that is invaluable to anyone studying communications.

Further information may be obtained by phoning Colleen Chipper or Rosemary Pearce on (09) 420 7018. Mention that you saw it in AR!

SPRATLY ISLAND

It seems that China is again accusing Vietnam of invading one of the islands in the Spratly area. A Foreign Ministry spokesman said that Vietnam had again been called upon to withdraw its troops from all occupied islands in the group which are strategically important because of the proximity to vital shipping lanes.

Again I suggest that this area be deleted from the DXCC list of all societies, before some amateur or amateurs get into serious trouble or lose their lives in a foolhardy attempt to activate this prefix.

GUESS WHO?

The newly appointed Director of Telecommunications for the Republic of Nauru for a period of two to four years has held many call signs including his latest of C21A. Some of the previous calls for C21A are FW8DY, VR3DY and KH6GLU. Have you guessed who it is yet?

The answer is none other than Ed ex-VK4LX and VK8XX.

QSL to PO Box 17, Republic of Nauru.

EVENTUALLY SETTLED? ? ?

Willy de Roos ex-VK9XR/MM, a gent who has been everywhere has eventually settled in VK6. Willy has taken out the call of VK6AWD.

PETER 1 ISLAND

One reader of this column did take my advice of buying a lottery ticket to celebrate working the island and like myself received zero dollars. Bad luck Gwen and if you had won, I know that you would have passed on my commission.

Did you work Peter 1 Island? Here are the operators of that first. Kare LA2GV/3Y2GV, Luis LU1BR and Einar LA1EE/3Y1EE taken during a stopover on the way home in Buenos Aires.

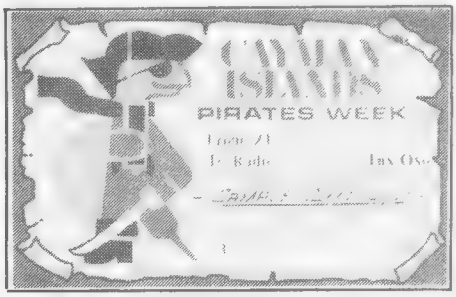
—Picture courtesy of QRZ DX and WA2VUY

ANOTHER PREFIX

Exasperation! It is really getting necessary to have a computer mind with a lot of RAM to keep in touch with all the prefixes that are floating around the spectrum of late. The newest is C33 which will be activated next month by a group of Spanish operators. Another one was CN32FIC which was used at the Casablanca International Fair. Another KT4A, was on Tangier Island (IOTA NA-83) and wait for it — was operated by the members of the Maryland Apple Dumpling Radio Amateur Society better known as MADRAS.

PIRATES WEEK

Another special call ZF10PW, has been allocated to the Cayman Amateur Radio Society for 'Pirates Week' which is to be held between October 24-31, this year. A special card has been struck and may be obtained by sending your card for any QSO with the call plus US$1 to CARS, PO Box 1029, Grand Cayman.



One of the special cards.

CENTRAL AFRICAN REPUBLIC

A newly licensed YL amateur is Margie TL8DN, who is getting amongst it quite well, but please give her a go when you hear her trying to control a pile-up. It can be quite a frightening experience to be on the receiving end and I have heard seasoned operators go QRT or QSY under the strain.

NORTH COOK ISLANDS

Ronald 'Bing' Crosby VK2BCH, should be still signing from the North Cook area. Bing's call last year was ZK1XV and he hoped to obtain it again. All cards for the operation with a SASE to PO Box 344, Forster, NSW 2428. Bing, though a WIA member requests please no cards via the bureaus. One question Bing, how will the USSR amateurs and SWLs, receive confirmation of a rare country with no bureau cards?

FREQUENCY STANDARD

Reliable sources indicate that VNG, the frequency standard, presently run by Telecom is to be officially shut down at the end of March 1988, due to no other Government Departments being interested in taking the equipment over.

This will leave the amateur, some mariners and other users without a reliable frequency or time standard at their disposal, as WWV does not have the coverage or frequencies that are readily tunable on some amateur equipment.

Sad but true, and it all comes back to the economic trend that is affecting our lives at the present.

UNWANTED CARDS

VE5RA and VE5SV who operated the calls ZF1MM and ZF9SV respectively have advised the Cayman Amateur Radio Society that they do not want the 500 odd cards that are lying in their bureau.

There are going to be many disappointed amateurs. But why go to a semi- remote area, operate through the 'pile-ups and then not want to QSL. Not everyone can afford the direct postage and isn't that what the bureaus are for. It really leaves me speechless!

Elephants are supposed to have a long memory and it is trusted that these two operators are treated the same way when they require that 'special card'!

SMILE AWHILE

Some quotable quotes. "The secret of success is sincerity. . .once you can fake that. . .you have got it made! ! !" and "Remember:. . .madness takes its toll! ! !. . .We've always been crazy. . .but it keeps us from going insane! ! !" and "Just when you were winning this 'rat race'. . .along come faster rats! ! !)".

These are some of the quotable quotes from none other than Lee KH6BZF, the voice of Rainbow Bay, Hawaii. Thanks Lee for the smile from these and we hope Laura is not subjected to such mirth at the breakfast table. Laura, if you are, you have our sympathy.

THE ARRL DXAC SURVEY

Ross WB6GFJ, drew my attention to the ARRL DX Advisory Committee Survey which will play a big part in structuring the ARRL DXCC that will be carried into the next century.

Due to space restrictions I will only highlight a few of the questions. A complete copy is obtainable by sending a SASE to DXAC Survey, C/- WIA Federal Office, PO Box 300, Caulfield South, Vic 3162. This questionnaire will assist the Committee which has been tasked by the Directors of the ARRL to formulate a workable plan.

I urge all interested DXers to obtain a copy, answer the questions and post it off to the ARRL as some of the questions such as 'Should DX stations or DXpeditions that solicit donations over the air, be disqualified for DXCC credit." 'Would you like the DXCC country criteria relaxed to allow for more countries?' and 'Are you in favour of a 'fresh start' with the DXCC program as happened in 1945?'

These are three of the 19 questions which I again urge you to obtain and send off to John W4FRU, and his fellow helpers, as a considerable input is required from all areas. Australia in itself constitutes nine different countries, approximately three percent of the present DXCC total.

Thanks Ross for drawing my attention to the survey, and I do hope that your operation of FO0FB this month is quite successful. Ross will use 14.145, 14.180 and 14.240 MHz and will pick up his VK call during another visit to Australia next month. Melbourne is on his itinerary, as he wants to arrange the Air Mail delivery of the magazine rather than by Surface Mail through his membership and it is trusted that we can eventually meet.

AWARDS

If you go to the Antarctica and operate an amateur station all is well until you go to apply for the Worked All VK Call Areas award (WAVKCA) and then the fun starts. The rules state that if you are an overseas amateur you require 22 confirmations and a total of 77 if you are a resident VK.

A French, Russian or any other amateur using a prefix other than VK, even if they are operating alongside each other only has to obtain 22 confirmations, yet the VK has to obtain the 77 confirmations to obtain the award.

It has happened, so please let us all learn from our mistakes and amend this anomaly now, backdating the amendment to the date of the initiation of the award by changing the wording to mean mainland Australia (VK1-VK8 inclusive) and classify the VK0 and VK9 prefixes as overseas amateurs. This alteration would allow those that have operated from these areas to achieve the handsome award they deserve.

SCOTLAND

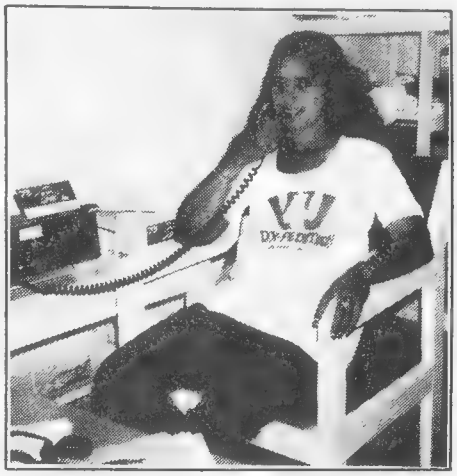
The special call GB2NTS, was being aired in May from the Culzean Castle in Scotland. Plans are that three other special calls will be heard for June, July and August from other historic locations. A nice certificate is available for all four and QSLs are via the bureaus. No rip off on this one folks.

SOME YL CALL SIGNS

The following YL calls have been worked of late. Clelia I5ICY, a YL Club Station OK5YLS, Elizabeth VE7YL, Mary 5W1FM and Mary Ann WA3HUP. Incidentally UZ9MYL is a YL and QSLs too.

WHY? ? ?

Why did the DL operator visiting Monaco have to sign with the 3A before the DL5FF, while the French station put the 3A after his call? Intriguing to say the least!



Bharathi VU2RBI. A dedicated Public Relations Officer for our hobby.
—Photograph courtesy *QRZ DX*

JITTERY JOTTINGS

Is **YA0DX** genuine or not? QSL to **PO Box 1, Kabul** sounds doubtful. ** **XU1SS** is still quite active. ** It appears that **Peter OH1RY,** after getting all his cards answered eventually, is again thinking of doing another Pacific jaunt in October. ** **BV0AE** was activated by a group of JA operators. All QSLs to **JA1UT.** ** If you hear **9Q5YL,** give Tina a call. Tina is the 13 year old daughter of **9Q5NW.** ** **Tom VR6TC,** his wife **Betty VR6YL** and **Frank DL8FL** are still continuing the scheds that they have been having for a decade. ** **Operation Raleigh** cards are all clear for **ARRL DXCC.** ** **EX3TM** was a special USSR call. ** **TV8DEC** was aired from **Le Palais de la Decouverte** during May and worked by many VKs ** **4K1AH** is located at the **USSR Mirny Base** in the Antarctica. ** **Bharathi** advises that the Nicobar Island plans fell through. No reasons and no intention of any activation was intimated. ** **Sierra Leone** is using the unusual prefix of **29L** to celebrate 29 years of independence. Is 29L allocated to that country? Maybe it is like spinning a 'lottery wheel' use what comes up!! ** Another **P8** has appeared. This one has the suffix of JP. No QSL info was forthcoming so my advice is to save your time, effort and money.

ANOTHER SMILE

Wayne Gregson, a columnist with the Melbourne *Sun* has picked this little piece of trivia up. Wayne, always with a sense of humour, notes that the Melbourne based computer firm of Webster Computer Corporation has been hitting the United States market recently.

The company has announced the release of a new mini computer aimed squarely at the IBM small business market.

The new gizmo is named Piranha and Wayne says 'go on and ask why?'

'It is small, fast, lightweight, with plenty of byte and has been spawned for small business users with caviar hardware tastes on a PC budget.'

You had to ask didn't you?

CW SWL-ING WITH ERIC L30042/VK5

10 METRES
VK6JQ and Beacons VK2RSY, VK5WI, ZL2MHF.
15 METRES
FK8DD, NI6P, UR2RKG, VE6CSR, W4CN, YC0BAQ, YC3KDL, YC7JM and YD2HAX.
20 METRES
DJ3FW, FK8FW, HA1AES, IV3ZCZ, I8AOH, HB9NL, HK1ANP, KH6WT, OK3JW, OK2KOD, OK3JW, RA4HX, RB4IXQ, RW9IM, UA9NN, UB4DWW, UL8CWW, UL8LWO, UZ3AZO, UZ6AXJ, YU4EBL and YV1AD.
30 METRES
DJ6FO, DK5LI, DL8MX, F3NB, F6FMP, G3LGW, G4FM, OZ4LP, PA3EHE, SM5AHK, VE2GZD, VE3NXB, VK0ML, W0IDW, W2FJ, W3PA, W6PRL and W8ZD.
40 METRES
4N7EP, 4S7RO, 6Y5AL, CO2OM, EI8AK, G3SED, G4ODV, HB9BZA, HK1AMN, HL2ACS, K5HKX/M, KB6RGG/AA, TI2OY, VE3IY, YU1ABA, ZF2KI, ZK2EKY and ZL7DE.
80 METRES
KS7V and N4PGL.
160 METRES
ZL1BEK and ZL1LS.

HEARD AND WORKED ON THE WEST COAST

40 METRES SSB
C31LBL, FT8WA, LT1A, TL8TG, TU2QU/3X4, V85NT and ZL7AA.
40 METRES CW
3A/DL5FF, FD1AKC/3A, 4K1H, 5L2CU, FG/W2QM/FS, FM5ES, KP2J, LU8DQ and VP9C.
80 METRES SSB
OY9JD, P40AR, TF3BM, TR8JLD, TU4CG and ZS1MH.
HEARD AND WORKED ON THE EAST COAST ON 20 METRES
5B4SA, 8J3ITU, 9M6AE, 9M8GH, A92EV, BV6IA, BY4RB, CU1CB, JW5E, JW1LK, JW6WDA, JY5CI, KH0AC, LJ2Z, OY8I, P40AR, SV2WT, TI2LTA, V85RM, VK9LM, ZK1AC, ZS1AU and ZS1FJ.

SOME BUREAU QSL INFORMATION

3A/DL5FF:DL5FF, C31LBL:EA3DPP, FD1AKC/3A:FD1AKC, TL8TG:N4NW, TU2QU/3X4:F6FNU and ZF2KI/9:K1KI.

SOME DIRECT QSL INFORMATION

5B4SA	PO Box 1531, Nicosia, Cyprus.
9M6AE	PO Box 14277, Kotha Kinabalu, East Malaysia.
9M8GH	PO Box 2870, Kuching, Sarawak, East Malaysia.
A92EV	PO Box 2, Bahrain, Arabian Gulf.
BY4RB	PO Box 4B, Janzhew City, Peoples Republic of China.
JY5CI	PO Box 616, Amman, Jordan.
V85RM	PO Box 191, Muara, Brunei.
YV6BJG	PO Box 655, Puerto Ordaz, Venezuela.

INTERESTING CARDS RECEIVED

Steve VK2PS, has received some interesting cards amongst the hundreds he receives yearly. Listed below are a small selection.

4K1C, 4S7NMR, 5W1EK, 8J3JST, 8J8EXP, 8R1RPN*, 9M2FP, 9M6AE*, A92EV*, BV2DA*, EW3AP, EO3AWK, FK025AT, GB2SM, HC1OT, HG6N, HG19HB, HK9BRW, HV1CN*, JW6VDA, KC4AAC*, KI84O, OA4ED, TI4BGA, UA1OT†, UO5AR, V85RM*, VE7EXPO, VK0DA‡, VS6AU, VS6JH, VU2AIG, VU2PNU, XE2BJC, YB8VM, YV1QP, YV4DZJ, A71BK*, ZS6AIS and ZL8HV*.

KEY
* Card received direct
† Franz Joseph Land
‡ Direct Card via Manager

THANKS

Sincere thanks to the Editors of weekly, bi-weekly and monthly publications such as: *ARRL Newsletter; BARG; CQ-QSO; The DX Family Foundation Newsletter; Inside DX; KH6BZF Reports; Long Island DX Bulletin; NIAR News Letter; Papakura Radio Club Bulletin; QRZ DX; RSGB DX News; QRZ DX, RSGB DX News* and *The W6GO/K6HHD QSL Manager List.*

Magazines including *Break In; DX Post; JA CQ; JARL News; KARL News; Meteorological News; QST; Police Life; RadCom; Region 3 News; Telecom- WA; Weather News* and *Worldradio,* to mention but a few.

Some of the individual contributors this month include VKs, 2PS, 2BCH, 2EBX, 3IO, 3PA, 3YL, 3DYL, 4BHJ, 6NE, ON7WW, WB6GFJ, ZL1AMN and staff of the Lillydale Municipal Library.

Sincere thanks to all that have made the column possible over the years, good future DXing and like the famous Bugs Bunny cartoon ending with the catchy tune, I will say "That's all folks" de Ken VK3AH.

ar

Packet Radio

Part 4: HAPN/SADCG MASTER CONTROL SUBSYSTEM

Steven Blanche VK2KFJ
Secretary, SADCG
PO Box 231, French's Forest, NSW. 2086

If you are planning to write your own packet software you may consider installing a Master Control Subsystem, the system discussed here is used in the VADCG TNC. It was originally written by Stu Beal VE3MWM, of Hamilton Area Packet Network (HAPN) and Doug Lockhart VE7APU, of VADCG, and improved by the SADCG.

The Master Control Subsystem is essentially a controller and dispatcher for the TNC, by use of a menu which gives options such as choice of protocols; ie AX25 protocol and Vancouver V3 protocol, a Monitor function with various facilities including debugging tools and on-line help. This monitor program is provided for diagnostic purposes during software development. It can be used by those users who are interested to view the link and terminal buffers so you can see the actual form of each packet. Let us look at these functions of the Master in more detail:

RESET

This may be caused by a Power-On-Reset (at switch on) or by pressing the RESET button and is processed within the MASTER module in the following manner.

1 The DCD line (pin eight) is held low for about 800 ms and then set high. This can be used by Remote Bulletin Board Services (RBBS) to sense when the TNC has been reset by a hardware watchdog timer.
2 An AUTOBAUD routine is entered which allows the TNC to adjust itself to your terminal's speed and format. Just type alternate commas and periods until you see the TNC sign on with the following text:

VADCG Terminal Node Controller
SADCG Master Control Subsystem
January 28, 1985. VK2KYJ

The date shown will be the date of your version of the MASTER and it will be followed by your call sign.

3 The MASTER then examines each additional ROM in the TNC. For each ROM it finds, it prints a menu item number and a description of the protocol supported by that ROM. Once all ROMs have been examined, the user may select from the protocols displayed by typing the menu item number. This will be followed by a message to identify the software version. The TNC is then ready for use. Alternatively, you may enter a monitor program.

TRAP

TRAP interrupts generated by the TRAP button (if fitted to the TNC) cause control to be passed to the AUTOBAUD routine. Once the AUTOBAUD process is complete, you will enter the monitor within the MASTER ROM.

MONITOR

The monitor can be entered in several ways.

1 After a TRAP interrupt.
2 From the initial master menu.
3 By issuing a monitor command while executing a protocol.

NOTE: Entry after a TRAP interrupt requires an AUTOBAUD.

Upon entry to the monitor, the contents of the registers of the 8085 microprocessor, the 8250 serial interface and the 8273 HDLC protocol controller are displayed as shown below. The status of the "connect" LED (if fitted) is not changed unless the Save command is given.

TRAP REGISTERS

8085 PC=3748 SP=43F4 IM=88 A=1E F=54
BC=FC00 DE=6024 HL=6025
8250 RBR=0D IER=09 IIR=01 LCR=03
LSR=60 MCR=07 MSR=70
8273 Status=00 Result=F4 RXIR=05 TXIR=0D

Commands are Initialise, eXamine, Return, Dump, Load and Save.

Type the capital letter only.

MON> (this is the monitor prompt)

NOTE: If the 8085's Stack Pointer is outside the normal range when the monitor is entered, the register display will be like the following:

TRAP REGISTERS

8085 PC=084D SP=405C**BAD** IM=80
A=60 F=54 BC=612E DE=0949 HL=601F
8250 RBR=2C IER=09 IIR=01 LCR=03
LSR=60 MCR=07 MSR=70
8273 Status=00 Result=F4 RXIR=0A TXIR=0D

This display is normally only seen if a TRAP is received while in the monitor. Once the monitor prompt (MON>) is seen, the user may then enter a one character command (upper or lower case) from the following list:

I Initialise. The TNC will display Initialise TNC. This is almost equivalent to a RESET (AUTOBAUD will not be required). The initial signon message and protocol menu will then be displayed.
R Return. The TNC will display Return to interrupted program. If the monitor was entered from the master menu, the initial signon and menu will then be displayed. If the monitor was entered from a protocol ROM (by monitor command or by pressing the TRAP button), control will be passed back to that ROM.
D Dump. The user may dump (view) parts of memory in Hexadecimal and ASCII. This command requires a hexadecimal memory address to be entered (0000 is assumed if no address is given). Leading zeros are not required. The Line Buffer is from 5000h to 53FFh and the Terminal Buffer is from 6000h to 63FFh.
L Load. The user may examine and change a series of (RAM) memory locations. This command requires a hexadecimal memory address to be entered (0000 is assumed if no address is given). Load is terminated by typing a ctrl C (control C).
S Save. This command allows the user to download the contents of the TNC's memory to a host computer for later analysis. It requires a special program to control the save and to capture the data (TNCDUMP) is available for computers running Digital Research's CP/M operating system).
X eXamine. This command will display the contents of the processor registers at the time the monitor was entered (or the TRAP button pressed).
H Help. This is the on-line help facility, which displays a short form list of the X.3 parameters, which can be accessed and viewed without disrupting a connection. Using the Return functions returns you to where you left off.

A TYPICAL SESSION

A typical monitor session is shown below. User input is in italics. Comments are in brackets.

(Initial power-on reset — the user types , . . . , (AUTOBAUD) until:)

VADCG Terminal Node Controller (initial prompt)
SADCG Master Control Subsystem
January 28, 1985. VK2KYJ

1 AX.25 Protocol (protocol menu)
2 Vancouver Protocol — V3.

Select a Protocol from the preceding, or press RETURN to enter Monitor: 1
(select AX25 protocol)

Executing selected Protocol

AX25 LIP 053186 AX25 NIP 053186 AX25 TIP 053186 (signon)

**se 7 8* (set parameter 7 = 8)
hello test from VK2KYJ
(a short test message sent over the air)
**mo* (command to enter monitor)
(Note the * is the TNC response to an escape key of the terminal)

TRAP REGISTERS (register display)
8085 PC=2A4C SP=43F6 IM=81 A=48 F=04
BC=0002 DE=4F4D HL=2A48
8250 RBR=0D IER=0D IIR=01 LCR=03
LSR=60 MCR=07 MSR=70
8273 Status=00 Result=F4 RXIR=05 TXIR=0D

Commands are Initialise, eXamine, Return, Dump, Load, Save and Help. Type capital letter only.

MON>*DUMP:5000* (dump link buffer)

5000:1D FE FF FF 3B 53 13 01 00 68 65 6C 6C 6F 20 74 . . . . ;S. . .hello t
5010:65 73 74 20 66 72 6F 6D 20 56 4B 32 4B 59 4A 0D est from VK2KYJ.
5020:0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . . .
5030:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . . .
5040:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . . .

MON>*LOAD:7000* (load a few bytes into RAM)
7000:00-1
7001:00-2
7002:00-3
7003:00-4
7004:00-5
7005:00-6
7006:00-7
7007:00-8
7008:00-9 (load terminated with ctrl C)

MON>*DUMP:7000* (check the load)

7000:01 02 03 04 05 06 07 08 09 00 00 00 00 00 00 00 . . . . . .
7010:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . . .
7020:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . . .

(dump stopped by pressing any key)
MON>*X* (have another look at registers)

TRAP REGISTERS
8085 PC=2A4C SP=43F6 IM=81 A=48 F=04
BC=0002 DE=4F4D HL=2A48
8250 RBR=0D IER=0D IIR=01 LCR=03
LSR=60 MCR=07 MSR=70
8273 Status=00 Result=F4 RXIR=05 TXIR=0D

Commands are Initialise, eXamine, Return, Dump, Load, Save and Help. Type capital letter only.

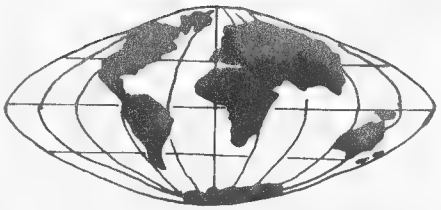
MON>*S*ave TNC memory to host computer.
(save memory to host computer)

Please load and run TNCDUMP on your computer. Type "X" if this is not possible.
(connect LED flashes while waiting for response — pressed x, so back to monitor)

MON>*R*eturn to interrupted program.
(back to AX25 protocol)

This is not an exhaustive demonstration of the monitor — it is intended as a guide only. That covers the Master Control Subsystem and ends this series on the SADCG AX25-X3 Protocol. Unfortunately, this only covers the terminal interfacing portion of the AX25 protocol, for the Link Interface and Network Interface portions you will have to refer to the AX25 Specification, available from the ARRL. It is hoped this information will be of help to those amateurs developing their own packet radio software and also to those who are just interested.

ar



VHF UHF — an expanding world

Eric Jamieson VK5LP
1 Quinns Road, Forreston, SA. 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

FREQUENCY	CALL SIGN	LOCATION
50.010	JA2IGY	*Mie*
50.060	KH6EQI	*Honolulu*
50.075	VS6SIX	*Hong Kong*
50.109	JD1YAA	*Minami Tori-shima*
52.013	P29BPL	*Loloata Island*
52.020	FK8AB	*Noumea*
52.100	ZK2SIX	*Niue*
52.200	VK8VF	*Darwin*
52.250	ZL2VHM	*Manawatu*
52.310	ZL3MHF	*Hornby*
52.320	VK6RTT	*Wickham*
52 325	VK2RHV	*Newcastle*
52.345	VK4ABP	*Longreach*
52.350	VK6RTU	*Kalgoorlie*
52.370	VK7RST	*Hobart*
52.411	VK0MA	*Mawson*[1]
52.420	VK2RSY	*Sydney*
52.425	VK2RGB	*Gunnedah*
52.435	VK3RMV	*Hamilton*
52.440	VK4RTL	*Townsville*
52.450	VK5VF	*Mount Lofty*
52.460	VK6RPH	*Perth*
52.465	VK6RTW	*Albany*
52.470	VK7RNT	*Launceston*
52.485	VK8RAS	*Alice Springs*
144.019	VK6RBS	*Busselton*
144.400	VK4RTT	*Mount Mowbullan*
144.410	VK1RCC	*Canberra*
144.420	VK2RSY	*Sydney*
144.430	VK3RTG	*Glen Waverley*
144.465	VK6RTW	*Albany*
144.470	VK7RMC	*Launceston*
144.480	VK8VF	*Darwin*
144.485	VK8RAS	*Alice Springs*
144.550	VK5RSE	*Mount Gambier*
144.565	VK6RPB	*Port Hedland*
144.600	VK6RTT	*Wickham*
144.800	VK5VF	*Mount Lofty*
144.950	VK2RCW	*Sydney*
145.000	VK6RPH	*Perth*
432.057	VK6RBS	*Busselton*
432.160	VK6RPR	*Nedlands*
432.410	VK6RTT	*Wickham*
432.420	VK2RSY	*Sydney*
432.440	VK4RBB	*Brisbane*
432.445	VK4RIK	*Cairns*
432.450	VK3RAI	*MacLeod*
432.535	VK3RMB	*Mount Buninyong*
432.540	VK4RAR	*Rockhampton*
1296.171	VK6RBS	*Busselton*
1296.420	VK2RSY	*Sydney*
1296.480	VK6RPR	*Nedlands*
10300.000	VK6RVF	*Roleystone*

1. Mark VK0AQ, at Mawson, indicates the VK0MA beacon has been running consistently for several months now and the frequency readout has settled on 52.411 MHz and seems to be staying there. Having done some work on the beacon to overcome the dropouts which were occurring, Mark is loath to attempt to bring the frequency down to 52.400, as it may prejudice the present reliable operation as the crystal may prefer to operate where it is at present! The outside temperature at Mawson on May 7 was minus 25 degrees Celsius and getting colder.

QUEENSLAND

A letter from Lyn VK4ALM, in Rockhampton, updates his Six Metre Standings with a confirmation of his contact with VK0SJ. He was somewhat irked by not being able to make contact with Neville and his DXpeditions to ZK2, 5W1 and 3D2 despite much monitoring and trying. He could hear the VK2 and VK3 stations working Nev but no sign of him in Rockhampton. (I can imagine the frustrations, Lyn . . . 5LP).

Lyn also reports the VK/JA TEP season has not been particularly good so far this year. Openings have been few and far between, although he knows the Alice Springs VK8 Group have had a good share of contact to JA. The far North Queensland boys have been amongst it as usual. Lyn worked 31 stations in JA spread over 20/3, 28/3, 29/3, 10, 11, 12/4, 23/4, 29/4 and 2/5. Russian television signals have been logged about 25 times, but are generally at low level and short time duration — the late April/May openings usually occur in the 0830 to 0945 UTC time slot. Thanks for writing Lyn.

EME NEWS

Chris VK5MC, from Hatherleigh, advises the ARRL EME Contest dates for 1987 have been set at October 17, 18, and November 14, 15. As in the past, he is prepared to give a moon printout to any interested people who supply a large SASE.

The first 2304 MHz EME signals were heard at VK5MC on Sunday 10/5 at 0630. WE2WEB was heard T-M copy over a 30 minute period calling ZL2AQE. WE2WEB was The East Coast VHF Society operating from the QTH of K2UYH using a 28 foot dish and 100 watt solid-state amplifier.

Equipment used at VK5MC is a 20 foot dish with a 3.5 dB noise figure converter using a Ne64535 in the front end. This can be improved in future using a GaAsFET as the low noise amplifier.

The antenna is starting to be very sharp and is showing up some tracking readout error and some mechanical flexing in the wind, so some more work needs to be done before any two-way communication can be considered.

Good to hear from you Chris and that you are well on the way to being on another band for EME. Now that VK2AMW is no longer operational as an EME station, I will have to rely on you and Doug VK3UM for EME happenings in Australia. Good luck.

THE MALAYSIAN SCENE

David Rankin 9V1RH/VK3QV, has written from Malaysia to say that there is a slow development of VHF usage in that part of the world. Two metre repeaters are now operational in Malaysia with one each in Kuala Lumpur, Penang, Singapore, Brunei and Sabah. The last three named have only come into operation during the past 12 months, or so. Apart from the repeater networks there is virtually no other amateur activity on VHF in most of these countries, the only exception being OSCAR working. However, some local amateurs are grasping the idea that "DX" is possible. From time to time Indonesian YC/YD stations 100 km to the south of Singapore will access the Singapore machine whilst well elevated 9V1s (eg 70 metres up a high-rise building) can occasionally access the Kuala Lumpur repeater. There is plenty of room for further development.

USSR VHF/UHF RECORDS

The letter from David Rankin 9V1RH, also enclosed an English translation of a short article which appeared in the Russian *Radio* magazine No 12 or 1986. It lists the current USSR records for a number of VHF/UHF bands. We wish to acknowledge the translation work done by Dex Anderson W4KM.

144 MHz tropo: UA6IE to DK0TU 26.10.85 3025 km.
144 MHz aurora: RB5EU to PA1AGJ 9.02.86 2160 km
144 MHz meteor scatter: UW6MA to GW4CQT 12.08.77 3099 km
144 MHz ionospheric scatter: UA1ZCL to DK3UZ 27.06.82 2150 km
144 MHz EME: UA1ZCL to ZL2BGJ 14.10.84 17523 km
430 MHz tropo: UA6LGH to OZ2OE 26.10.85 2786 km
430 MHz aurora: RA3LE to PA0RDY 8.02.86 1800 km
430 MHz EME: UA3LBO to ZL3AAD 3.12.82 18907 km
1260 MHz tropo: RB5EU to OK1AXH/P 26.10.85 1922 km
5650 MHz tropo: UK5ECZ to UK5EFL 6.08.82 1166 km
10000 MHz tropo: UK5ECZ to UK5EFL 8.08.82 1166 km

The article goes on to day that beginning in 1980, a table of achievements of Soviet ultra-shortwavers has been published annually, by mode and band, although delayed this year due to late receipt of some information.

"Data analysis suggests a relationship between recent achievements and geography. For example, on 26.10.85 several Soviet ultra-shortwavers increased distances on three bands all at once. These are impressive results, but are 500 to 700 km less than European results because the latter were established over ocean or sea rather than continental paths.

"In the course of a single day in February 1986, the fartherest communications were established here in our country via 'aurora'. In contrast to 'tropo' the nature of aurora propagation favours ultra- shortwavers on the USSR located at medium latitudes, leaning to the hope that Soviet amateurs will better the European records on 144 MHz.

"The results for moon communication are fast approaching the limits. Their improvement depends on the appearance of new EME stations, Soviet as well as foreign, in specific areas.

"It is still too early to speak of limits when it comes to Es communications. Both our own and European achievements result from two-hop propagation, yet three or four hop propagation, though far less probable, is fully possible.

"Our results are noticeably behind the European ones on 5.6 and 10 GHz. We must hope this situation will change, first of all on 5.6 GHz, which, beginning only last year, began to be opened up by Soviet amateurs."

It is interesting to read of propagation modes and path distances from other parts of the world as it all helps to keep those presently holding records on their toes and attempting to further their own records as well. Thank you, David.

TWO METRE METEOR SCATTER

Doug VK3UM, has sent me an outline of an article he is preparing for *Amateur Radio* on the very interesting subject of meteor scatter on two metres. A National Two Metre Calling Frequency has been chosen on 144.350 MHz bearing in mind this may be more useful for those affected by Channel 5A and also may be left alone by the local ragchewing element.

I will not spoil Doug's article by picking too much out of it but one point which he believes to be very important is that of frequency accuracy although not to the degree of being paranoid about it! Time sequencing is probably even more important.

In support of meteor scatter activities, a very brief note from Doug VK3UM mentions a contact with Angus VK4ADQ, which was via random meteor scatter on April 20. Five second sequencing is used between 2000 and 2200 by VK3UM to VK4 and Gordon VK2ZAB used 2100 to 2200 to VK4. Despite the paucity of contacts, Doug believes there are quite a few listeners nevertheless.

FROM NEW ZEALAND

Pleased to receive two letters from Paul ZL1TZA, with a lengthy report on conditions on six and two metres as they appeared in New Zealand during the past six months. Since I do not receive *Break In* now, I have had little to report from that country, but it seems Paul is willing to write from time to time so his offer is gratefully accepted as conditions in their country do not necessarily follow those of Australia. As the first letter covers back to

October 24, 1986 I will only briefly report the earlier period and provide more detail from the later letter:

It appears the Es season started in New Zealand on 24/10 at 0944 to VK2. 6/11 to VK3, 4, 5 and FK8EM on 11/11 and again on 16/11. ZK2AZ on 18/11 and ZK2 beacon 26/11 and heard VK0SJ calling CQ on 28/11. On 2/12 worked VK6KEW at 0800. Then through to 13/12 with mainly VK1, 2, 3, 4, 5 and 8 being worked, on that day conditions were superb. Worked 5W1GA, ZL3, FK8, VK4, 5, 6 and 8. VK beacons being heard from many places. Malaysian television sound heard.

On 14/12 VK2, 3, 4, 5 and 7; VK1, 2, 5 on 18/12; FK25A, 3D2ER, 3D2MR and VK2BGG on 20/12. But the best day for the season was 21/12 which started at 2012 with FK25FL, VK8ZLX, VK8ZCU, VK4WF, VK4ZGB, VK4KU, VK8ZMA, VK2FJR, VK2BA. Then two metres opened to VK4LC VK4KJL, VK2DCC (who was in for an hour), VK2ADY, VK4ZSH, VK2DVZ, VK4ZAZ. Also heard VK8 on two metres while working VK2DDC who also heard them and worked them. Then back to six metres to VK1, 2, 3, 4, 5, 6 and 8. Good conditions prevailed through the Christmas period to New Year.

Paul asks where were the Darwin stations this year? None worked at the VK5LP establishment either! He also says it appears VK5 and VK6 stations do not QSL else the service is very slow. (I cannot answer for others, but I have a policy of QSLing stations from areas I have already worked and confirmed if they send me their card first. A card may not go out with the next mail but one will eventually be sent. . .5LP).

In the second letter dated 6/5, Paul says he generally only monitors the bands during the early morning, sometimes at lunchtime, and evening and weekends. His location is not a prime one due to a distant island and local television on 50.740 MHz which puts plenty of crud on the band. This the take-off etc is rather poor towards VK. He does operate portable from the coastal regions at times and this helps.

3/1/87: P29ZEF heard at 1010 working ZL2s and VK4; 5/1: FK1TK 0930; 6/1: VK2 and 4; P29ZEF again at 0720; 7/1: VK2, 4 and heard VK0SJ for 45 minutes; 8/1: VK2, 3 and VK0SJ beacon in for hours, then worked ZL3 and 4; 9/1: VK7ZIF, VK5LP, VK3YDE; 12/1: VK2XJ, ZL3 and 4; 13/1: FK1TK at 0015, all VK2 beacons but no VK2s to work; 14/1: VK4, 5; 15/1: VK2 beacons again, but no one to work!!! 16/1: VK4KU; 17/1: VK3DQJ heard; 18/1: VK7, 3; 19/1: VK4KU; 20/1: VK5KMW, 3D2ER heard; 22/1: VK3ZKP; 23/1: VK2XJ; 25/1: VK4KU; 26/1: VK4KU, ZL3 and 4; 27/1: VK4KU in for 1¼ hours; 28/1: VK2 and 6. VK5AYD heard calling CQ YD. VK FM stations audible but no two metre activity. VK9NS heard working VK5 and 6, but not able to get him in ZL; 29/1: VK2XJ, ZK2 beacon 0615 to 0900.

2/2: ZL3 and 4; 3/2: Worked ZL1QL on two metres who said he was hearing VK two metre beacons and VK Channel 0 stations were affecting his Channel 1 television! 4/2: VK2XJ; 8/2: VK2; 9/2: VK2 and 3; 12/2: VK7FB; 13/2: VK2XJ; 14/2: VK4KU, VK2 and seven beacons; 15/2: VK2 beacons; 17/2: VK2 beacons; 28/2: VK2XJ; 8/3: VK2 beacons 0245 to 0335; 15/3: excellent opening to VK4KU from 2355 to 0246, VK2RSY, VK2RHV and VK3RMV beacons; 26/3: FK1TK at 1100; 11/4: VK2XJ 2351, VK4ABP 2335, VK3RMV 2345 to 0015 also VK3RGG but no stations to work; 12/4: VK2RSY 2310 to 0220, VK8ZLX heard calling CQ at 0305, carrier on 52.427 at 0335 for some time; 14/4: thought heard KH6 at 1215; 18/4: Japanese and Taiwanese trawlers operating near NZ using 51.750 SSB at 2100; 19/4: VK2RSY 0020 then worked VK4KU at 0118; 29/4: voices heard briefly mentioning 'about their beam' as Argentinian Airlines aircraft flying over, beam pointing to VK4. Was this aircraft enhancement on six metres?

1/5: VK7RST beacon good copy 1105 to 1115. VK2RSY Sydney beacon also but no contacts.

Whilst the earlier part of this information is somewhat dated, I have included it because it indicates the great number of times the band is actually open across the Tasman and seems to indicate that, at least for half the year, six metres is open to somewhere at sometime! It would seem therefore, that more operators should call and not just listen for someone else to do so. Paul also mentions working into VK5 when the beacon was not audible nor were there any Channel 0 stations heard. He asks if the six metre propagation is frequency and/or location selective. There have been many instances where propagation exists on 50 MHz but not 52 MHz and this proved very irksome to VK stations before they could put any signals on to 50 MHz. During the peak of the last cycle many more stations could have been worked here if we had been able to use 50 MHz. And locations can be selective too. When David VK5KK was at Wasleys, it was not unusual for him to work JA stations 10 minutes before I could and for a short period after they left me as the band closed. This is even more pronounced on two metres. Last year, when I was at Meningie, Roger VK5NY was working VK4s 10 minutes before I could. So, you need to live in the right place at times!

SCATTER SIGNALS

Doug VK3UM. sent me a copy of a letter from Ross VK2DVZ, which gives an outline of how those doing scatter work are recording their information. Ross reported hearing VK3UM on the night of 3/4/87 from 1055 to 1103 plus some meteor pings, on 144.350 MHz. The next morning he listened again from 2000 to 2200.

The equipment at the VK2DVZ QTH consists of an IC290H and fie element Yagi (inside)) with VK5 preamplifier and about 10 metres of RG213, headphones used. In the report, 111111 = six times copied; ie fully identified within that minute; 1 trace = heard, but not identified; 1 'K' trace = heard 'K' only.

2117 nil (CZJ aircraft reported at light level 350)
2118 nil
2119 nil (Canberra beacon 5x9)
2220 1 K trace only
2221 2 K traces (EWC reported at flight level 280)
2222 nil
2223 1 trace and 1 K trace
2224 4 K traces pulse 1 complete — very very weak
2225 1111 very weak
2226 2 traces
2227 1 K trace plus 11 very weak (Canberra 5x8)
2228 1 K trace plus 1111 weak
2228 plus 34 secs small ping
2229 111111 — weak (CZJ checked into Melbourne control)
2230 1111 plus 1 K very very weak
2231 1 trace plus 1 K trace
2232 1 K trace plus 111 very weak
2233 111 very weak
2234 VK3UM trace only (EWC left flight level 280)
2235 nil
2236 three K traces and 1 very weak and so it goes on!

A certain amount of dedication is necessary when dealing with such weak signal levels, but it is obvious signals are there a large part of the time and there is some aircraft enhancement from time to time.

The above, read in conjunction with the projected two metre meteor scatter article by Doug VK3UM, may encourage more people to try their hand and skills at scatter contacts.

GENERAL NEWS

I was very sorry to learn that Ray VK3ATN, had his antenna manufacturing factory destroyed in a fire on April 7. Such a disaster would tend to make one wonder if it is worth going on, but I expect Ray will continue. Antennas must be a great cause of concern to him when we remembers his accident with a large tower being destroyed in a gale while he was on it, resulting in serious personal injuries. We hope all your troubles are now behind you, Ray.

I note from the *SERG Newsletter* that the VK5RSE beacon on 144.550 MHz has had more problems. This time the antenna and chimney on which it was mounted was blown down. Since then, Peter VK5KBF and Trevor VK5NC, erected a tower at the beacon site and reinstalled the old dipole antenna about two metres higher than previously. This will have to do until Trevor can come to light with his projected high gain omni-directional antenna! In the meantime, reports seem to indicate improved coverage from the beacon. Unfortunately, the VK5LP two metre system is still not operational so I cannot give a local report.

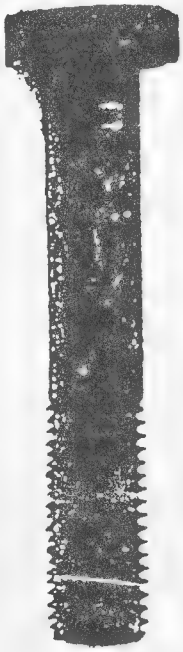
The Mount Gambier boys are hoping the VK3 gang can give their beacon, VK3RTG, a valve grind and improve its performance. Surely if the beacons are operating properly it should be possible to hear the Melbourne beacon in Mount Gambier at any time if living in a reasonable situation, and the converse should be the case in Melbourne. Before all the damage was done to VK5RSE, it was always available here at VK5LP 24 hours a day despite my poor location.

A FOOLS GUIDE TO FUSE REPLACEMENT

97 Amp

243 Amp

612 Amp



1 482 Amp (Slow-Blow)

There is a subtle message in this reprint from *The Propagator.* One should appreciate the "Slow Blow" characteristics of the large bolt!

Last month, I congratulated Les VK3ZBJ and David VK3AUU, for their wins in the Ross Hull Contest. In addition, I should have congratulated Trevor VK5NC, who came second on an Australian-wide basis for seven day scoring and had the second highest score in the two day section, but, as he received the VK5 State Award, the winning certificate for the two day section went to David VK3AUU. Trevor certainly put a lot of time into the Contest and has reaped his rewards. Peter VK8ZLX also did very well.

VK5LP recently received a Ross Hull Award for the 1985 contest. Apparently the back-log of certificates is being cleared so hopefully all those so entitled will have received their certificates by now.

I came across an item I seem to have missed in a letter from David VK3AUU, on 4/11/86 which reads "I have a rather good time on two metres since putting up a new antenna system on 19/10 so thought I should share the news.

"I now have 19 elements on a 38.5 foot by 40 mm boom at 40 feet on 144 MHz, 33 elements on a 27 foot tapered boom at 34 feet on 432 MHz and nine elements on a 36.5 foot by 50 mm boom at 27 feet on 50 MHz. I have masthead GaAsFETs on the two higher frequencies with about 150 watts to the antenna on 50 and 144, and 50 watts on 432. All the antennas are home built DL6WU designs, with elements mounted through the boom. I have all that lot on a homemade 26 foot high tilt-over tower with a full length of 1.5 inch water pope at the top. Incidentally, the tower is guyed.

"Since the antennas went up I have worked seven separate call areas on two metres by the following means: VK1 by aircraft reflection and tropo, VK2 by aircraft reflection, VK3 and VK4 twice by meteor scatter, VK5 by tropo, VK7 by tropo, and W5UN by EME. Dave's signal was 12 dB above the noise in the 100 Hz bandwidth filter and we exchanged 0 reports on CW. I also have a very good tape of Chris VK5MC, off the rising moon on 29/9. We had a very good tropo path between us at the time and I was able to hear both the transmitted and reflected signals with the doppler shift and the two and a half second delay easily audible. I have been running a sched with VK7JG for about two years now each evening at 8 pm on 144.100 and the only time we miss out is when one of us is not on. Since putting up the antennas the Mount Gambier beacon is audible virtually all the time even without the help of aircraft.

"I have materials on hand to make four more 144 MHz Yagis for a separate moonbounce array which should have a gain of about 21 dB." (Since the above was written I believe David has completed the four bay array and reaping the benefits of his work. . .5LP).

Band activity has been rather low lately. Did hear a VK4 on six metres on 5/5 but he faded out before I could have a contact. I still feel very lost without two metres and hope the position can be corrected before too much longer.

CLOSURE

By the time you read this we will be right in the middle of winter, so bear in mind that a certain amount of Es often appears during this time on six metres. It is little use everyone monitoring without calling — nothing will be heard then! So do make some calls, you may work someone even if no Channel 0 stations can be heard.

Two thoughts for the month: *Progress is like a wheelbarrow — push, or it stops* and *A young man never realises that some day he will know as little as his father.*

73 *The Voice in the Hills*
ar

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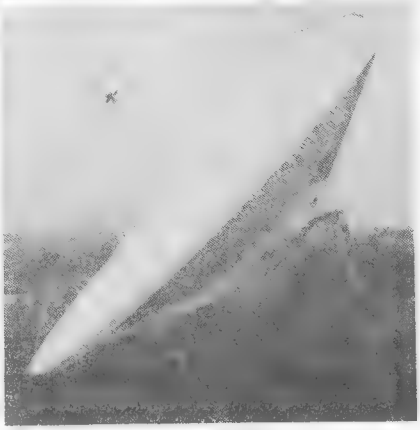

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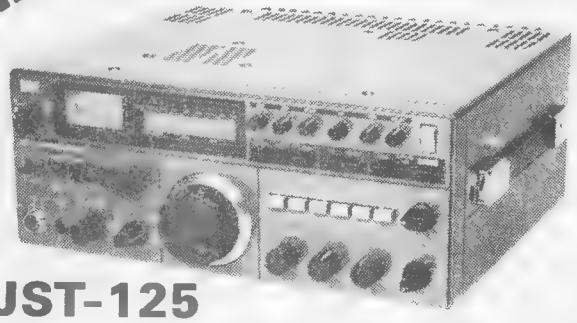

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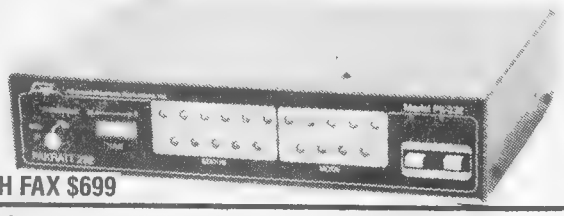

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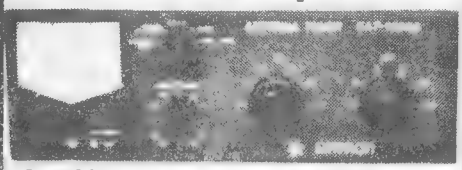

This new EAT-1000/A is EMTRON S latest antenna tuner built on special request by many amateurs. Built with finest components available, 5 position internal antenna switch, cross needle SWR/power meter, built in 3:1 balun for open feedline and antenna terminals for coax line, open feedline as well as longwire. EAT-1000A will tune almost everything from 1.8 to 30 MHz. At lowest price professional design and quality that EMTRON provides. MADE IN AUST

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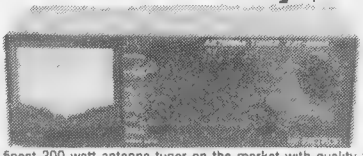

The finest 300 watt antenna tuner on the market with quality that only EMTRON can provide! Unique features such as:
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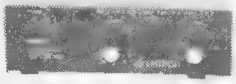

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ETP-1 will match your antenna to your receiver for maximum signal from MW to SW. It utilizes a low noise 12dB gain preamplifier to boost weak signals. Special spring loaded long wire terminals as well as SO239 connectors make ETP-1 the most versatile tuner/amplifier on the market

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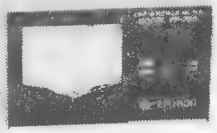

Yes this new from EMTRON — highly accurate CROSS-NEEDLE SWR & POWER meter, model EP-200 with a freq range from 1.8 MHz to 60 MHz and two power ranges 20, 200 watts, gives instantaneous readings of forward/reverse power and SWR

ONLY $99 + $10 POST

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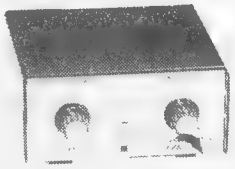
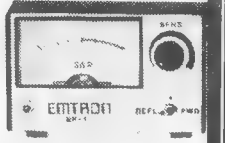


Professionally made noise bridge for all kinds of RF measurements antena adj etc

NOISE BRIDGE with EXPANDER EBN-2 $129 & $10 P&P

EMTRON'S NEW HF SWR METER EP-1



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Specially designed for SWL. Based on the famous "DRESSLER DESIGN", the unique electronic circuitry gives to receiver a perfect impedance match from 100kHz to 30MHz. A 12 dB low noise pre-amplifier gives weak signals a boost comes complete with 240V AC 12V DL supply and 10M of coax

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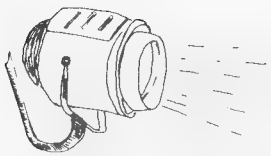
VICTORIA:
288-294 Queen St, Melbourne
Vic. 3000.
Entrance from Lt. Lonsdale St.)
Ph: (03) 670 8551 or 670 0330
FAX: (03) 670 0671

QUEENSLAND:
416 Logan Road, Stones Corner
Qld. 4120. TLX:144696
Ph: (07) 394 2555
FAX: (07) 39 4316



Spotlight on SWLing

Robin Harwood VK7RH
52 Connaught Crescent, West Launceston, Tas. 7250

The telephone rang at 9.45 am one Thursday morning recently. "This is Australian Associated Press in Melbourne. Have you heard any Fijian amateur stations in the last hour or so?"

"Why?" I replied, "Has there been a cyclone or other natural disaster?"

"No, there has been a military coup in Suva. All telephone links have been cut and we are wondering if you have heard any amateur stations coming on with any news."

"Well, I don't think any amateur would be so daring to transmit under those circumstances" I stated and also informed them that there was no external or shortwave outlet of the domestic broadcasting service from Suva.

I was well and truly caught on the hop by this call. The place was all confusion as we were having renovations done to our home. Everything was a little haywire and I was not able to do some serious scanning of Pacific circuits until later in the day. I did monitor the BBC, but found that Radio New Zealand and our own Radio Australia far more informative on what was happening.

Later in the day, another telephone call came from Peter Jones on an FM station in Brisbane. He also requested the frequencies for any Fijian shortwave services. News was scarce and, as cable and phone circuits were congested, it was imperative that any shortwave media outlet be quickly found. Brisbane has many resident people from the South Pacific region and naturally they had been keen to be kept abreast with the latest news.

I was not able to assist him as the shortwave outlets of the Fijian Broadcasting Corporation were closed early in the 70s. The only SW outlet that was consistently heard was Nadi Air Traffic Control on 8.867, 5.643 or 3.467 MHz USB. Ironically, I received a mail request from Bud VK4QY, for those very frequencies that day.

At deadline time, the situation is still very confused. Because of the tight censorship imposed on the local media, most Fijians relied on shortwave news broadcasts, especially Radio Australia.

Just a few weeks ago, RA's "Talkback" program repeated Peter Bunn's series on DXing the South Pacific. This is very timely. As you are probably aware, the South Pacific has become very important of late. Many of the Pacific island nations have low powered senders on the tropical broadcasting allocations and we are in a very favourable location to hear them. I highly recommend that those seriously interested in monitoring South Pacific broadcasters obtain copies of Peter's script, which is readily available from "Talkback", Radio Australia, GPO Box 428G, Melbourne, Vic. 3001.

Incidentally, RA has commenced a daily propagation forecast, in co- operation with the IPS Radio and Space Services in Sydney. It is presented six days a week at 0425 UTC, and repeated every four hours until 2025 UTC, by Mike Bird. It contains the solar flux for the previous day and the appropriate sunspot number, together with predictions for the next 24 hours. On Sundays, there is a weekly summary of the weeks conditions in "Talkback", which is almost identical to that on Radio Netherlands "Media Network" on Thursdays. I find this service from RA, indispensable and much easier to digest than the WWV propagational forecasts at 18 minutes past the hour. Often I am unable to hear WWV because of WWVH or JJY or BPM.

Conditions are picking up and 14 MHz is alive with Europeans and Americans again. This is a reliable indicator to me on how propagation is behaving, yet appearances can be deceptive. I am positive that we have turned the corner far as as the sunspot number is concerned, but I think it will be a long haul up to the peak we experienced seven to eight years ago.

Those casual shortwave listeners who would like to obtain current schedules from various international stations, but are reluctant to write to the stations individually, may be interested to learn that there is a service in Australia. Known as the "DXer's Schedule Service" it is handled by Howard R Moore and the cost is $20 per annum. For more information, write to Howard at 33 Brooklyn Avenue, Salisbury, SA. 5108. He is also one of the Australian agents for the respected "International Listening Guide" which is $25 per annum.

In April, the World Service of the "Christian Science Monitor" commenced operations from Scotts Corner, Maine with a 500 kW sender. As reported in earlier columns, they bought KYOI on Saipan and plan to link up via satellite with WCSN later in the year. I also am informed that they plan to have a sender in Texas or Florida, to serve South America.

By now, the BBC Hong Kong relay will have commenced testing their senders, preparatory to a September start. This will improve audibility to China, Japan and Northern Asia generally. The frequency to watch is 15.280, during our local daytime and the station will probably have identification announcements on test.

It has also been recently confirmed that Swiss Radio International and the Central Broadcasting Network of the People's Republic of China will be commencing sharing transmitting facilities. No date has yet been given, but it is possibly later in the year. SRI recently extended use of the Africa No 1 site in Gabon for their transmissions to Latin America. This makes Africa easy to hear, because Radio Japan and Radio France International also utilise their facilities to relay their transmissions.

In conclusion, I would like to thank several people who have been providing me with research and information, especially Bill Perleberg L70043, of "Sunrise Gardens", Ferntree, Tas. Bill has consistently forwarded the latest schedules of some station. Also, to Don Rhodes VK3BMB and Ted Carter VK7EC, for background briefings. Other sources are the Australian Radio DX Club and the Southern Cross DX Club, through their excellent bulletins.

Keep your ears on the South Pacific, as I do not think we have heard the last of this area. In the meantime, good listening and monitoring.

73, Robin VK7RH

MORSEWORD 4

Compiled by Audrey Ryan
Wife of Joe Ryan VK3ABA

ACROSS

1. Stoop
2. To lose strength
3. Disguise
4. Mink is one
5. Employs
6. Nobleman
7. Intertwine
8. Dry with cloth
9. Likeness
10. Hand

DOWN

1. Suffix for killing
2. Second-hand
3. Rhizome
4. Dread
5. Misdoings
6. Present
7. Mountain
8. Top
9. Contend
10. Repair

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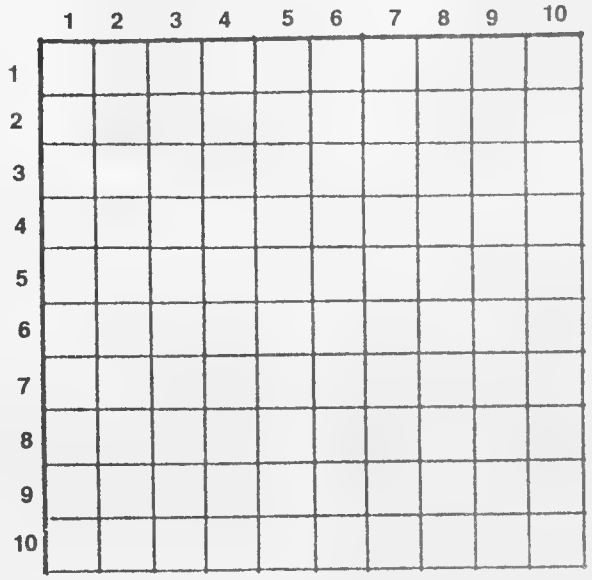


Solution page 64

Education Notes

Brenda Edmonds VK3KT
FEDERAL EDUCATION OFFICER
PO Box 883, Frankston, Vic. 3199

From time to time I receive information from various sources about community programs or amateur radio activities.

I try to file them so that I can refer to them later but usually find they disappear into the "must do sometime" basket.

One item which has just re-surfaced and which I feel is worthy of some publicity is the leaflet about the "University of the Third Age" at Monash University in VK3.

I quote the introduction to the leaflet:

"The University of the Third Age is a learning community organised by and for people who can best be described as being active in retirement — the so-called 'Third Age' of their lives.

"The overall aim is to satisfy such people's needs for the stimulus of mental activity."

Leading the list of topics planned for 1987 is amateur radio. (There is some advantage in having a course title starting with 'A').

Rob Carmichael VK3DTR, who has been running a Novice Class for two hours per week since February tells me that the pace is set to suit the students, that some practical activities are included and that trial examinations are a regular feature.

There are no fees except the membership of the association which, according to the leaflet, is $15 for individuals or $25 for couples at one address. There are no required qualifications except a wish to learn and share knowledge, and no assessments or awards. Students in the Novice course, however, can sit for the DOC examinations if they so desire.

In all the debate about how to attract more qualified participants to our hobby, the attention has been focused on youth. This U3AM course is directed specifically to the more senior recruit.

This seems to me to be an admirable idea. Retirees and near retirees have experience, maturity, potential spare time and usually more disposable income than the school leavers or young family person. And amateur radio is an eminently suitable hobby as mobility and ability to travel decline.

I would be very interested to hear of any similar courses in other institutions, and look forward to hearing how Rob's students perform at their examinations.

I have recently had correspondence with candidates in their 70s or older. Let us encourage these new members as much as we can. As I have stated previously, I am always pleased to be informed of classes being run by groups or individuals as I do get queries from potential amateurs seeking help. I would very much like to have lists of members who would be willing to devote a little time to talking to and encouraging students in their localities.

As mentioned in my report to the Federal Convention, the Education Net seems to have died for lack of interest. I feel this is a pity. It seemed a good idea to have a way of sharing problems and bright ideas with the possibility of immediate feedback or action.

In the hope that this will stir up some action I will continue to call each Thursday evening at 1130 UTC, somewhere about 3.680 MHz.

Thank you to all those whose inputs helped to make the discussions at the Convention a little easier. The recommendations regarding the devolvement of examinations have been publicised elsewhere.

Further information will be distributed as available.

75, Brenda VK3KT

ar

Awards

Ken Hall VK5AKH
FEDERAL AWARDS MANAGER
St George's Rectory, Alberton, SA. 5014

AWARDS ISSUED IN APRIL 1987

HEARD ALL VK CALL AREAS
125 Steve Anderson L20440

WORKED ALL VK CALL AREAS
1525 Bob Hyndman ZL7AA
1526 J T Kelleher VK3DP
1527 Karl Ditgens DF5KX
1528 Uldino Cavallaro I0JTV
1529 Elvio Pizzo I0ZQ
1530 Surace Giovanni I8IGS
1531 Walt del Conte WD6EKR
1532 John E Daluas YB5NOF
1533 Asterios Barbatsalos SV1IX
1534 Yoshitaka Chida JA7EAI

DXCC — OPEN
355 Abet Suhaian YB4FNN

DXCC UPDATES IN APRIL

	PHONE	CW	OPEN
VK2BQS	161		168
VK3YJ	298(1)		
VK4AIX	184	143	204
VK4KS	316(31)		316(39)
VK6AJW	282(2)		
VK6MK	316(43)		316(43)
VK6RF	311(13)	294(24)	312(30)
VK7BC	296(5)	200(6)	304(6)

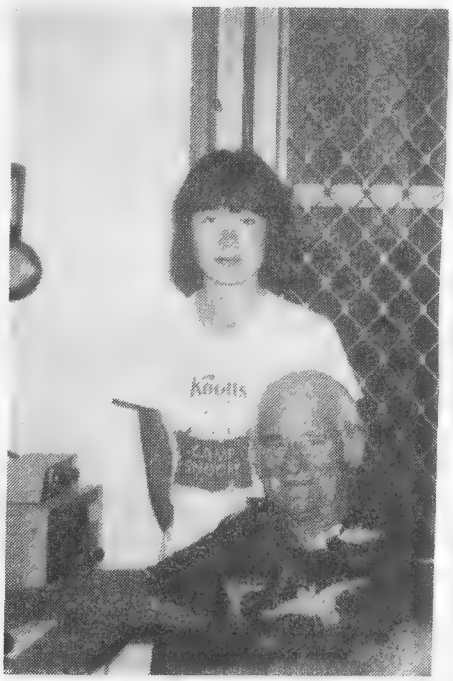
ar

INTERNATIONAL TRAVEL HOST

Bill Wells VK4CWB and VK1WB
8 Eacham Avenue, Paradise Lakes, Qld. 4216

The International Travel Host Exchange Scheme involves more than visits!

Bill VK1WB with Colonel "Hogy".



Bill VK1WB with International Host Exchange Visitor, Mariko Ichikawa JP1TVK, from Tokyo, during her visit in January/ February this year.

As the VK1 mentioned in paragraph two, page 3 of the May AR, I would like to explain how the scheme involves more than visits.

Since my participation in the scheme in mid-1986 the following events have taken place:

A visit by —
K0BJ and JP1TVK (she stayed for one week)
Exchanged correspondence with—
N6HYK re operating in Sydney via a club station whilst visiting Australia
JP1QZZ visiting Australia via Western Australia
KB2AUG planning a visit to Australia
KA9UNL/DJ0DAJ re immigration to Australia

So far we have not been overloaded in providing transport and accommodation, and I would like to be able to recommend other VK hosts in other areas of Australia to like visitors.

Having visited amateurs in Canada, the United States, and Jamaica I know how helpful it is to have a knowledgeable "local" contact to make the visit flow smoothly.

Colonel "Hogy" is a certain "ice-breaker" with guests but he is very efficient in chopping up cables so has to be well supervised during his walk-abouts in the shack!

The advice guidelines by Ash are excellent, but be diplomatic re costs of meals, petrol, etc — when visiting offer to cover some costs even being a little aggressive, but tactful.

I urge many more VK amateurs to join the scheme. Participation is very rewarding.

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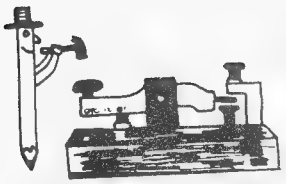


Pounding Brass

Gilbert Griffith VK3CQ
7 Church Street, Bright, Vic. 3741

Q & Z CODE BOOK

If you, like me, occasionally have trouble remembering your Q- Codes, there is a new publication available containing all the current Q and Z codes.

The English language, 82 page booklet by PA0BFN and PA3ALM, is a handy reference book for every shack, and its intention is to stimulate greater use of the codes. While today's Q-code takes up 36 pages, the original 1912 version is contained on one page. QSB meant *Is my tone bad?* or *Is my spark bad?;* QRG was *What* (shipping) *line do you belong to?;* QRZ, *Are my signals weak?;* and QSL, *Did you get my receipt?.* Many changes have taken place since 1929 and, of course, amateurs have adapted many of the codes for their own use.

The Z-code is hardly known by amateurs today, although there are still some examples in the *RSGB Radio Communication Handbook.* There are 23 categories covering every type of signal, from various aspects of aviation, to meteorology, traffic generally, and 'various.' This last category includes ZUF1, 'Air Raid Warning'; ZUF2, 'Air Raid in Progress'; and ZUF3, 'All Clear'. I hope we will not have to use any of these particular signals, but there are certainly a number of Z-codes which could be revived for amateur use with advantage.

The Q/Z booklet costs three pounds, post paid, just send a bank cheque to Morsum Magnificat, 1 Tash Place, London, N11 1PA.

CONTESTING

My belated thanks to the scores of enthusiasts whom I worked, and all the others who came up on air in the John Moyle Memorial Field Day Contest, to make it so enjoyable. Together with the Commonwealth Contest and the ZL Field Day participants, altogether a lot of numbers swapping around made whichever contest you were in that much more fun. It is certainly a pleasure to hear so many Morse fans and to renew old friendships, however briefly, during a contest. With my average of 7.25 contacts per hour, there was occasionally time for a quick chat. Even though much of the time is spent 'hunting and punching' it is nice to hear so many different 'fists' on the bands. I suspect that a lot of the fun of a contest is meeting some calls on all five bands, sometimes more than once in the same contest. One seems to have a circle of friends met only in contests, and it is great to hear that some of the rag-chewers are enjoying their first taste of contesting. Why not scout around your local club and see if they would like a Morse operator for their next entry? It is much easier, especially for your first time, if there is a group of people doing the setting up. There is usually a roster system so you need not sit at the rig for the whole time, but can change jobs or even take a nap. A mere hour on the key and I promise you will be hooked.

CALLING XU2UU

Tony Smith G4FAI, says, "Ray Hunting G3OC, has sent me an account he wrote in *Mercury* the journal of RSARS, July 1984, about an experience in France during 1940.

"Ray was sending important traffic back to the UK when the enemy got a fix on his frequency and jammed his signal. The UK operator gave up, and the key was taken over, Ray believes, by the Sergeant-in-Charge, who told him over the air that he was previously XU2UU.

"After that, the two operators abandoned Army procedures and worked as amateurs, using QRQ, QRX?, QSY, etc, to outwit the interference. At this distance of time, Ray recalls the other operator's call as XU2UU, although he only heard it once through bad QRM. Can anyone help identify this operator, who was obviously a Royal Signals amateur operating in China pre- war?

"Two names have been suggested so far — 'Blanco' White and Frank Lawson. Maybe someone has a *1938/9 International Call Book* they could look up to see if either of those names, or the call, is to be found there? If you can help, please write to Rev Ray Hunting G3OC, 25 Station Road, Thurlby, Lincs PE10 0JA, England."

WANTED

Does anyone have one or two Curtis 8044 ICs for sale? I have passed on my three-year-old EA-78 keyer to a budding local Morse enthusiast and now need to build another spare keyer. On the other hand, if none are available locally, I will have to order direct from the USA. So let me know if you want one, and I will see what I can do.

I was reluctant to part with my "first" keyer as it was my first attempt at home-brewing, the kit was no longer available so I had a lot of chasing to do to collect all the parts. I would have kept it but he pointed out that my new rig had a spare already built-in. Along with my three hand keys, now two, things should be okay until I can build another.

I only hope he takes my advice and does not practice too much on the iambic keyer before he sits his 10 WPM examination using the hand key.

THE SPIRIT OF MORSE, an excerpt from *Morse Magnificat*

I wonder how many of us are aware that it is still not necessary to regard our old brass hand key as an ancient monument. It seems that modern technology has tried to oust the hand key but has not succeeded so far.

We now have electronic keys, automatic keys, keyboards, and computers, that can make perfect Morse, and sometimes receive it too. But, wouldn't it be a pity if we tuned around the bands and only heard this antiseptic machine-CW, with the recognisable characteristics of the personal fist, and unique individual style, lost forever?

We don't want to stop progress, but we think there is room enough in every shack for the things of yesterday, as well as those of tomorrow. It is in the character of the amateur, and the spirit of amateur radio, that we regard with interest, and respect, the achievements of the past while looking, at the same time, to the future.

The key has its part in this process. "When we take the operational end of our hand key between thumb and two fingers, feeling as if they were specially created for signalling, we imagine ourselves in communication with the early pioneers of 'wireless', while we dream with them of technological improvements and progress in the field of communications."

If we, radio amateurs, ever lose this view, we may as well take our licences off the wall, and look around for another hobby.

NEWS

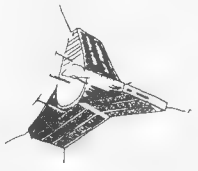
In the May column I mentioned a couple of ideas for a new class of entry license. I do hope you have had a think about it. The Federal Convention, in May, passed a motion to give the two metre band to novice operators. If this goes through, I imagine the novice examination will become harder than ever to pass. Morse enthusiasts are the logical choice if anyone is going to push for a simple CW only class of licence as an entry point for amateurs. Discuss your ideas with your Zone representatives of the WIA, if you wish to be represented, that is!

The advantages, as I see them, are that newcomers will be able to build their own equipment, design their own antennas and generally get on air with a minimum of expense. Those who do not want to build will still be in the market for all the secondhand home-brew equipment too.

A good grounding in the basics will make it much easier to understand the latest technology when it comes time for them to upgrade to the now difficult novice level. And, a more informed decision made when deciding which equipment to buy when going on to the other bands and modes.

For example, if there was a CW only rig, you and me, as 'knights of the key', would save plenty of money. We really do not need speech compressors, USB, LSB, FM and all the extras they involve.

73 and 88, Gil VK3CQ



AMSAT Australia

SATELLITE ACTIVITY FOR THE MONTH OF MARCH 1987

1. LAUNCHES

The following launching announcements have been received:

INTL NO — 1987	SATELLITE	DATE	NATION	PERIOD min	APG km	PRG km	INCL deg
023A	Progress 28	Mar 03	USSR	88.8	272	191	51.6
024A	Cosmos 1825	Mar 03	USSR	97.7	677	649	82.5
025A	Cosmos 1826	Mar 11	USSR	90.3	403	206	72.9
026A	Cosmos 1827	Mar 13	USSR	113.8	1409	1393	82.6
026B	Cosmos 1828	Mar 13	USSR	113.7	1409	1392	82.6
026C	Cosmos 1829	Mar 13	USSR	114.0	1412	1408	82.6
026D	Cosmos 1830	Mar 13	USSR	113.9	1409	1405	82.6
026E	Cosmos 1831	Mar 13	USSR	113.8	1409	1388	82.6
026F	Cosmos 1832	Mar 13	USSR	113.9	1409	1398	82.6
027A	Cosmos 1833	Mar 18	USSR	101.9	878	851	71.0
028A	Raduga 20	Mar 19	USSR				
029A	Palapa B-2P	Mar 20	USSR				

2. RETURNS

During the period 31 objects decayed including the following satellites:

1975-121A	Molniya 2-15	Mar 07
1985-109E	Oex Target	Mar 02
1987-016A	Cosmos 1820	Mar 06
1987-019A	Cosmos 1822	Mar 05

3. NOTES

1987-023A — Progress 28 carried expendable materials and varied cargoes for the orbit station MIR.

1987-029A — Palapa B-2P was launched by the USA from the Eastern Space and Missile Center for Indonesia. It will provide 24-transponder C-band (6/4 GHz) communications to Indonesia and nearby countries.

1987-022A — GOES-7 has orbital parameters: period 1382.1 min apogee 36 084 km; perigee 33 363 km; inclination 0.6 degrees.

—Contributed by Bob Arnold VK3ZBB

Electro-Magnetic Compatibility Report

Hans Ruckert VK2AOU
EMC REPORTER
25 Berrille Road, Beverly Hills, NSW. 2209

RFI ASSISTANCE LIST IN PRACTICE

We were pleased to find the "RFI Assistance List" in *QST*, February 1978, May 1981 and earlier, as well as in AR March 1982. Of course, no manufacturer or salesman could afford to say that he is not willing to help in RFI collision cases, when his equipment is involved. He may not be aware of the complexity of the job, that perhaps redesigning of the equipment would be required. The difference between the expressed willingness to help and actual effective help lies in the experience, know how, availability of technical means (filters), and the design features, which may or may not make help by the manufacturer possible. Some have done their homework very well at the design stage, whilst others still have a lot to learn. (See AR November 1986, pps 43-44, EMC Report).

More recently we seem to go backwards in the scope for EMC improvement due to less shielding and earthing, so that even the best added filters often cannot help. If now a manufacturer says to DOC or at a court hearing, that he did everything possible and with a reasonable financial effort, this may be a hypocritical statement, but might indicate to a non-technical-minded and uninformed judge that the particular amateur must have an especially bad transmitter, and is to be blamed after all. The manufacturer, importer or dealer is not likely to admit in court that the technical means to achieve EMC have been eliminated or left out of the equipment at the design stage, so that the apparatus cannot meet EMC design standards as they have existed in technically advanced countries for years.

All RF transmitting services should aim at obtaining a High Court ruling, that DOC licensed fundamental-wave radiation is not responsible for unwanted effects on other equipment. Affected equipment should have been EMC designed according to the state of the art. This has been and can be done economically (see AR, December 1986, EMC Report). If we go on as in recent years with the proliferation of electronic equipment and with little regard for EMC, we may soon reach the point where apparatus A interferes with apparatus B of the same manufacturer and vice versa, if both sets of equipment are operated side by side.

Then perhaps the right thing will be done at last, and the radio amateurs may be permitted to come back on the air unmolested.

TWO CORE MAINS CABLE, AND TWO PIN PLUGS

Old-timers will remember, that 30 years ago or so all locally made electronic equipment (receivers and measuring apparatus) had to have a three core mains cable and a three pin plug, providing an earth connection for the metal chassis and the transformer internal shield. Imported equipment with two core mains cable and two pin plugs was held back by the authorities and only released to the purchaser after modifications — three core cable, three pin plugs — had been carried out to meet the Australian Standards.

My *Tandy* Hi Fi AM/FM tuner/amplifier, *Kriesler* colour television set, and *Sony* reel-to-reel tape recorder have three core mains cables and three pin plugs. All were bought several years ago. Some of this equipment has a separate earth terminal as well, a metal chassis and metal chassis bottom cover. These design features help greatly to avoid RFI or to stop what may still get through.

RF susceptibility of a new *AIWA* cassette tape deck was reduced by 90 percent after an earth lead was added between the mains earth and the metal case of the recorder, replacing the now missing earth in the old- fashioned way.

Manufacturers of more recent home electronic equipment have found that they can improve their profit by saving one copper lead in the mains cable and one brass pin in the plug. They now point out that modern electronic appliances did away with the metal chassis in many cases. With nothing to earth one needs no earth wire and earth plug-pin. This means, as far as EMC is concerned, that RF and high-pass filter cases or contacts cannot be earthed at the appliance. This makes these devices more or less useless, and RFI is the result. Ferrite-core chokes are often the last hope to improve the RF immunity. EMC improvements are therefore, more than in the past, a job for the appliance manufacturer — not for the legally operating radio amateur.

RFI FROM OUTER SPACE

Radio astronomers complain that the signals from stars are often interfered with by the man-made signals from satellites. This causes "black spots" on their maps of the heavens. Is there any EMC solution to this problem?

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/88

INTERNATIONAL WROCLAW SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY

The ninth Wroclaw Symposium and Exhibition on Electromagnetic Compatibility will be held in Wroclaw, Poland, on June 28-30, 1988.

—Contributed by W Moron, Organising Chairman

ar

Electronics Australia

NEW MANAGING EDITOR FOR EA

The Federal Publishing Company recently announced the appointment of Mr Jamieson (Jim) Rowe as Managing Editor of *Electronics Australia*.

Jim is well-known to the electronics industry. His former 20-year association with *Electronics Australia* included five years as Technical Editor and nine years as Editor. He returns to head the staff of the magazine after time with Dick Smith Electronics, Microbee and, recently, as a journalist for *Electronics News* and *Broadcast Engineering News*.

As a most respected magazine in its field, *Electronics Australia* looks forward to a strong future under Jim's leadership. With the support of National Advertising Manager, Selwyn Sayers, and backed by Australia's special interest publisher, Jim's appointment will prove a springboard to further growth.

"It's an exciting challenge," he said, "to be involved in building the magazine into an even stronger, even better publication. *Electronics Australia* has a long, respected history, and a responsibility — to both its readers and its advertisers — to be relevant, dynamic and up-to-date. I like to think I can appreciate the past at the same time as looking towards the future, and I'd like to see the magazine reflect this."

Jim took up the appointment on June 16, 1987.

ar

CAROL ELECTRONIC CABLES NOW IN AUSTRALIA

Electronic cable produced by North America's largest cable and wire manufacturer is entering the Australian for the first time.

Multi-Contact Australia Pty Ltd has announced its appointment as exclusive distributor in Australia for Carol Cable Company Inc of USA which, with its affiliates, manufactures about one billion dollars worth of wire and cable every year.

Carol is one of the world's few totally integrated cable manufacturers, rigidly controlling the quality through every step of production from its parent company's copper mine to the finished products. Unlike many competitors these are all manufactured in its own plants.

A director of Multi-Contact Australia, Mr Derek Harris, says that his company will be distributing Carol cables for computer, audio, electronics and instrumentation usage.

"The availability of Carol cable will allow these industries to have a second major American cable supply source for the first time," he said.

"Until now Belden has been the dominant overseas supplier into these specialised markets, but manufactures will now be able to specify Carol cables using a comprehensive Carol-Belden cross-reference listing."

"These cross-references, showing both Carol and Belden product code numbers, are contained on a separate sheet which is inserted into Carol catalogues," Mr Harris said.

Multi-Contact can now supply, ex-stock, two types of Carol Paired Shielded Computer Cables especially designed for use in data transmission, control circuits and signal applications. These cables feature semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, conductors cabled in pairs, overall 100 percent Flexfoil aluminium foil/Polyester shield and stranded tinned copper drain wire. The conductor strand is 7/32.

C0601 contains two pairs of conductors whilst C0602 has three pairs of conductors.

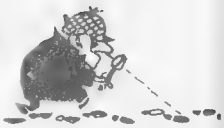
The third cable (C1352) is a Shielded Quad Cable with PVC Jacket designed for audio, communications and instrumentation use. It has tinned copper conductors, colour-coded polypropylene insulation, each pair shielded with 100 percent Flexfoil aluminium/polyester shield, foil facing outside, #24 stranded tinned copper drain wire and cables paired on common axis to reduce OD. The conductor strand is 7/30.

Catalogues are also now available from Multi-Contact on the specialised cables they are distributing for the Carol Company.

For further information about Carol cable or the new Carol cable catalogue, contact Multi-Contact Australia Pty Ltd,
NSW: 53-55 Whiting Street, Artarmon, NSW. 2064 ph (02) 438 3600.
VIC: 10 Nicholson Street, Coburg, Vic. 3058, ph (03) 383 3733.
WA: 2/115 Howe Street, Osborne Park, WA. 6017, ph (09) 443 3933.
QLD: 3 Marie Street, Milton, Qld. 4064, ph (07) 369 0544.

ar

Intruder Watch



Bill Martin VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW. 2077

The number of unauthorised transmissions reported for the month of March, 1987, was a little down compared with the same period for 1986. However, the following people are still giving good support to the Intruder Watch, and are making an effort to preserve our band-space:

VK2s DEJ, EHQ, PWS, QL, SG, Arthur Bradford; VK4s AKX, BG, BHJ, KHZ; VK5s GZ, TL; VK6RO; VK7RH; VK8s HA and JF.

There were 186 Broadcast Mode (A3E) intruders reported; 152 CW (A1A); 116 RTTY (F1B); other mode intruders totalled 58 and 36 intruders supplied us with their call signs.

"Gib" W7JIE, reports that the US amateurs are suffering QRM from Japanese fishing vessels on the 80 metre band, on lower sideband. These are difficult to classify in VK as intrusions, as, if they are in International Waters, they cannot be considered to be intruders. And, who knows where they are? Gib also nominates that the slow "V" beacon on 7.002 MHz is "beacon for USSR Maritime use, QTH Vladivostok" — interesting . . .

April 20 last was a pleasant day for me, with a visit from Bob Knowles ZL1BAD, the IARU Monitoring System International Co-ordinator. Bob was formerly the IARU Region 3 M-S Co-ordinator, and had been active in Intruder Watch in ZL for many years. Bob was accompanied by his wife, Barbara, and we all had a very pleasant meeting, and discussed many things, including, of course, Intruder Watch business. I think we all enjoy eyeball QSOs, particularly with those who we have worked on air frequently, and have never met in person.

So keep those reports coming, and if you have never sent in a report, then please do so, and give all our regular helpers a hand. See you next month. Good DX.

Bill VK2COP

ar

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Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW. 2868

MEMBERSHIP LIST & DATE OF JOINING as at March 31,1987

Charlene VK1NEJ	21 February 1982
Kathleen VK2ACP	1 October 1980
Betty VK2AMU	9 March 1981
Dorothy VK2DDB	17 March 1983
Norma VK2DJO	20 August 1975
Beryl VK2DVL	11 August 1979
Joy VK2EBX	25 January 1980
Heather VK2HD	22 October 1976
Marlene VK2KFQ	11 November 1983
Joyce VK2MI	5 November 1976
Margaret VK2MV	20 March 1982
Maree VK2NKN	6 August 1981
Nancy VK2NPG	7 November 1985
Margaret VK2PNG	23 March 1981
Bobbie VK2PXS	6 October 1977
Freda VK2SU	26 July 1980
Wendy VK2YQK/VKD	20 March 1982
Jean Darling	23 November 1983
Lorrie VK3AGO	6 May 1979
Rae VK3AYL	20 April 1976
Mavis VK3BIR	23 August 1975
Joan VK3BJB	2 August 1976
Mona VK3BRE	1 September 1976
Janet VK3BTU	1 September 1977
Barbara VK3BYK	1 February 1984
Margaret VK3CWA	25 March 1981
Kim VK3CYL	8 November 1983
Margaret VK3DML	8 June 1977
Marilyn VK3DMS	24 October 1977
Valda VK3DVT	25 March 1981
Bron VK3DYF	6 November 1982
Gwen VK3DYL	20 April 1981
Jan VK3HD	24 Jul 1985
Marjorie VK3HQ	3 October 1976
Mavis VK3KS	22 August 1975
Joan VK3NLO	19 October 1981
Bonnie VK3PBL	11 May 1983
Liz VK3PSG	20 March 1987
Clarice VK3UE	29 October 1976
Jessie VK3VAN	12 February 1981
Joyce VK3VBK	17 March 1979
Austine VK3YL	5 April 1976
Jean Truebridge	3 August 1975
Raedie Fowler	16 November 1976
Muriel May	9 June 1979
Margaret Hamilton	20 July 1986
Chris VK4ABN	14 July 1979
Sandra VK4ACJ	22 July 1980
Margaret VK4AOE	10 October 1980
Jill VK4ASK	8 October 1984
Connie VK4ATK	1 September 1982
Alma VK4BAE	4 March 1985
Dulcie VK4BDH	6 January 1981
Eleanor VK4BEM	1 May 1985
Betsy VK4BET	24 September 1985
Wendy VK4BSQ	2 March 1982
Anne VK4FAB	12 June 1981
Phyl VK4JFA	12 January 1981
Anne VK4KZX	12 November 1986
Dorothy VK4NAM	21 May 1976
Candy VK4NES	23 December 1985
Valarie VK4NNJ	21 August 1979
Mary VK4PZ	9 March 1981
Cecily VK4QW	9 September 1983
Josie VK4VG	27 February 1985
Val VK4VR	7 April 1983
Jenny VK5ANW	21 April 1976
Meg VK5AOV	26 November 1983
Maria VK5BMT	9 April 1986
Judy VK5BYL	20 March 1982
Vicki VK5FK	30 January 1987
Lorraine VK5LM	4 April 1976
Marlene VK5QO	12 February 1981
Denise VK5YL	20 April 1976
Pauline Koen	24 December 1983
Gill Wardrop	13 March 1986
Christine VK5ZCQ	24 May 1986
Bev VK6DE	2 March 1980
Helene VK6HI	23 November 1983
Bobbie VK6MH	14 December 1976
Peggy VK6NKU	15 February 1983
Sue VK6NSU	2 October 1980
Debra VK6OJ	9 December 1986
Inge VK6OV	31 March 1985
Margaret VK6QM	21 June 1980
Poppy VK6YF	3 July 1978
Gillian VK6YL	15 September 1976
Christine VK6ZLZ	17 December 1983
Olive Couch	21 October 1977
June Greenaway	24 December 1983
Lynda Francis	13 May 1985
Helene VK7HD	29 December 1977
Grace VK7NNN	9 July 1985
Moira VK8NW	9 April 1986
Kirsti VK9NL	1 June 1980

OVERSEAS MEMBERS

Christel DF1LV	11 December 1982
Christa DJ1TE	15 September 1979
Anny DF2SL	15 September 1979
Heidi DF3LX	12 March 1983
Margot DK5TT	1 November 1981
Aimee FK8FA	22 October 1984
Sheila G3HCQ	20 May 1981
Ann G4EYL	28 March 1981
Diana G4EZI	19 December 1978
Rae G4JMT	8 March 1984
Cilla G4KVR	1 November 1981
Sylvia G4VBT	28 November 1986
Dee G4VFC	17 December 1984
Angelika G0CCI	25 February 1986
Shirely GM4LUS	20 December 1980
Anne GM4UXX	23 May 1984
Kay GM6KAY	17 December 1984
Fumi JA1AEQ	21 September 1984
Akiyo JH1GMZ	6 February 1985
Nanako JI1VLV	8 July 1984
Mizuyo JE6JQC	30 January 1984
Etsuko JA6KYP	14 January 1985
Jean K1IJV	23 March 1981
Karla WA1UVJ	10 December 1979
Phyllis W2GLB/7	23 July 1976
Christine WB2YBA	1 June 1978
Jeanne KA3CEO	19 January 1984
Liz W3CDQ	1 November 1978
Mary Ann WA3HUP	6 October 1981
Ruthanna WB3CQN	30 March 1981
Lois WB3EFQ	19 October 1983
Edith WA4SRD	17 October 1979
Betty KA5ONE	20 November 1985
Mary KE5UO	10 February 1986
Carol KK5L	11 May 1983
Darleen WD5FQX	16 January 1985
Jerrie K6INK	9 June 1979
Joanie KA6V	16 October 1982
Elizabeth KA6NZK	19 November 1986
Mary KB6CLL	22 October 1984
Maxine N6GGR	28 December 1982
Claudia N6GZW	27 June 1985
Joanne N6LFZ	1 August 1985
Jessie WA6OET	17 January 1984
Martha KA7CRO	2 March 1982
Daurel KC7TE	21 December 1977
Gerry KD7RA	19 January 1984
Alice KD7SH	26 April 1984
Joan KD7YB	11 April 1983
Shirlee KQ7Y	1 October 1980
Marion WA7TLL	29 January 1986
Lee KB8RT	2 October 1980
June KM8E	10 February 1985
Shirley WD8HEV	1 February 1984
Ann K9RXK	22 August 1983
Eeva OH3ST	11 February 1987
Zdena OK2BBI	13 February 1986
Marie-Jeanne ON4AYL	1 September 1985
Agnes PA3ADR	12 June 1981
Hil PA0HIL	12 June 1981
Paula PA0ULA	1 November 1981
Inge PY2JY	23 June 1984
Hallie VE6AUP	1 October 1980
Elizabeth VE7WL	1 October 1979
Bobby VE7CBK	28 October 1978
Rae VE7CIX	28 May 1978
Margaret VE7DKC	7 January 1987
Muriel VE7LQH	10 October 1985
Betty VR6YL	26 September 1986
Tuti YD0TTK	28 January 1987
Junia YJ8NJW	6 February 1985
Aola ZL1ALE	12 December 1979
Celia ZL1ALK	1 November 1981
Win ZL1BBN	26 December 1985
Clarrie ZL1BDZ	18 March 1977
Elva ZL1BIZ	17 April 1982
Lesley ZL1BOR	11 May 1980
Ethel ZL1BWQ	1 December 1986
Gail ZL1FV	8 November 1983
Shirley ZL1MY	20 November 1983
Vicki ZL1OC	11 September 1977
Cathy ZL2ADK	30 October 1982
Dawn ZL2AGX	9 March 1987
Alma ZL2AWP	17 December 1984
Biny ZL2AZY	11 January 1981
Jos ZL2BAO	1 November 1981
Marilyn ZL2BQA	16 September 1984
Jeanne ZL2BOD	26 December 1982
Anne ZL2BOV	23 January 1984
Lynn ZL2PQ	25 December 1982
Pauline ZL2QW	4 November 1983
Pearl ZL2QY	22 April 1976
Gail ZL2TZG	17 January 1985
Carol ZL2VQ	30 October 1983
Lee ZS1YL	27 January 1986
Mimi ZS5YO	13 January 1987
Diana ZS6GH	1 June 1978
Pat ZS6VC	20 November 1983
Mary 5W1FM	20 February 1987

BIRTHDAY ACTIVITY DAY

Happy Birthday once again to ALARA. Our Birthday Activity Day will e held on Saturday, July 25, from 0400 to 1200 UTC. All bands, suggested frequencies as for the ALARA Contest.

We hope propagation will permit some of our DX members to join us on this occasion.

The ALARA Birthday Net will be held on Monday, July 27, at 1030 UTC. The customary net frequency, 3.580 MHz, ±QRM.

The VK3 Annual Birthday Luncheon will be held this year on July 26 at the home of Raedie and OM Ray VK3BHL, commencing at 11.30 am. A small plate required, tea and coffee available. For further information contact Raedie or Bron VK3DYF.

The VK5 girls will be holding a Birthday Get-together at the home of Meg VK5AOV and OM David VK5OV, on Sunday, July 19. Lunch at 12.30 pm (BYO). Interstate and overseas friends welcome. Contact Meg for further details.

ALARA-MEET

A reminder to all who have not yet sent in their registration forms, or booked accommodation for the second ALARA Get-together (ALARA- Meet) to be held on September 26-27 — the time is getting short. Do not delay any longer, but get your Registration to Maria VK5BMT.

Accommodation can be booked at:
The Granada Motor Inn Flag Motel, phone (08) 272 8211, mentioning the ALARA Group Booking.

Alternatively try:
Brownhill Creek Caravan Park, Brownhill Creek Road, Mitcham, SA. 5062. Phone (08) 271 4824. Their on-site arrangements are said to be very good.

ALARA AWARD UPDATE

No	Date	Name & Call Sign
125	29.12.86	**Jim Ballinger VK3NK**
126	14 01.87	**Hallie M du Preez VE6AUP***
127	18.03.87	**Harry Petrodaskalakis VK3ABO**

* Three Endorsement Stickers

ALARA are justly proud of their Award, which must e one of the most beautiful awards offered. The floral emblems of each State of Australia are delicately hand-coloured by Valda VK3DVT, who deserves a very special vote of thanks for the thoroughly professional job she does.

NEW MEMBERS

Welcome to new members:
Liz VK3PSG, Wendy (wife of Barry VK1BB) and Joanne VK4LCD. Joanne is one of our younger members, 16 years old.

Change of call sign:
Alma VK3BAE is now VK4BAE. Hope you are enjoying the sunshine, Alma!

YL NEWS

Two ALARA members have been elected to the WIA VK6 Divisional Council, namely Gill VK6YL and Christine VK6ZLZ. Christine is Vice-President of the Council. Congratulations to you both.

Maggie VK3CFI, worked the John Moyle Field Day Contest solo from a hill, accompanied by cows, sheep, and two active little harmonics. She used a G5RV antenna, and 10 watts output power. She worked 20 stations in spite of the difficulties. Nice going, Maggie.

Bev VK6DE and OM Brian VK6AI, using the special event call sign, VK6CUP, (America's Cup) logged nearly 200 calls during their rostered time.

June Greenaway L60068 was the first VK6 SWL to qualify for the award, and her grand-daughter Leeanne, the youngest SWL to earn the award. A great family achievement.

Congratulations to Helene VK7HD, who is the recipient of a 75th Anniversary Medallion.

The WARO Club Station, ZL2YL, has been very active during this WARO Silver Jubilee Year. Many people have the attractive Silver Jubilee Award, obtained for WARO contacts during the month of March.

CLARA, the Canadian Ladies Amateur Radio Association, will be 20 years old in September 1987.

JLRS are celebrating their 30th Anniversary this year, and will be holding a convention in Tokyo on July 26. Overseas YLs welcome.

VI3PVA

I have received a letter from the Amateur Radio Club "Polonia" VK3CRP, regarding the call sign, VI3PVA, in operation from October 1, to December 1, 1986, to commemorate the Papal visit to Australia.

This special call sign was issued to the "Polonia" Club, formed by Polish born amateurs, and not to Jan VK3DMH, as stated in the ALARA Column, April 1987, AR. (See page 15, November AR, for their special QSL).

I would like to apologise to the Amateur Radio Club "Polonia" for any inconvenience caused as a result of this genuine mistake.

Until next month:

73/33, Joy VK2EBX
ar

Club Corner

TUMUT & DISTRICT AMATEUR RADIO CLUB

The Tumut and District Amateur Radio Club meets each Wednesday at 7.30 pm at the Tumut High School. It is open to all ages and all levels of experience.

Club President is VK2DPZ.

The Club anticipates having its VHF Repeater operational shortly, receive 146.800, transmit 146.200 MHz. Visitors to the area are welcome to call- in.

—Contributed by Butch Chapman VK2BYS, Publicity Officer

ar

SUMMERLAND AMATEUR RADIO CLUB

The AGM was held in February and completed a very successful year. Membership increases all the time (currently 69), and, due mainly to a good raffle, finances have markedly improved. With the exception of Tom VK2DDG, who has moved to Queensland, the committee remains unchanged. Lance VK2NVF has filled the vacancy. Welcome Lance!

It was decided to make 1987 one of much social activity with an outing monthly. The following are typical activities envisaged for the balance of the year.

AMTOR & PACKET DEMONSTRATION

A very pleasant evening was enjoyed by about 17 members. The talk and demonstration was very competently put over by Gordon VK2AGE, who was ably assisted by Harold VK2CHM, with Brian VK2CMC providing the DX link. The packet demonstration went well but RF interference upset the AMTOR. Nevertheless, the lecture went over well. Afterwards the usual ragchew, supper and trades, etc, was enjoyed by all.

JOHN MOYLE CONTEST

A small group of quasi enthusiastic beings fronted for this event. We beat all previous records and got our score into double figures at last. Apart from contesting and ragchewing, various beings attacked more Channel 8 equipment and reduced it to cashable brass, copper and bits. The weather was kind and a pleasant afternoon was enjoyed by all.

PICNIC AT BYRON BAY

Who says that RF energy doesn't affect the weather? It did the trick on the day. The collective talk power dissipated the damp and the Bay had its best fine day for weeks. Nine members, 15 in all including family, attended and a good ragchew was had. It was good that two of our associate members were able to make it which enabled the two-way contact to be made. Only two energetic (or weight-watching?) souls, VK2DLR and Liz, stirred up the energy to walk up to the lighthouse. Some others did stray a bit and Blue did some beachcombing, or was it bird-watching?

—Contributed by Jim Cunningham VK2ESI, Publicity Officer SARC

ar

THE WIA URUNGA CONVENTION

The Urunga Radio Convention is the oldest radio convention in Australia. Now in its 39th year it has been held at Easter each year since 1948.

Following are the results of the 1987 Convention.

Saturday

1000 — 40 metre hunt, no winners
1130 — two metre, two transmitter hunt, First Jeff VK2BYY Second Ken VK2DGT
1400 — two metre, two transmitter hunt, First Greg VK2JPR Second Jeff VK2BYY
1430 — 80 metres mobile hunt, First Ken VK2DGT Second Greg VK2JPR

Sunday

1000 — The Urunga Scramble, First Graham VK2ZZV Second Allen VK2EFM
1130 — two metre, three transmitter mobile hunt winner Allen VK2EFM
1430 — two metre Multi-transmitter hunt, First Ken VK2DGT Second Greg VK2JPR
1530 — two metre, three transmitter hunt winner Greg VK2JPR, Runner-up Peter VK2EVB

Other Contest

CW Sending — First Allen VK2EFM, Second Jeff VK2BYY
Non-Technical Quiz — Louis VK2LS
Technical Quiz — Allen VK2EFM
Lucky Door Prizes — Mrs M Smith and Mr D Walker
Raffles
Planet Studio Light — Graham VK2ZZV
Easter Rabbit and Eggs — Peter VK2EVB

ar

RADIOACTIVITY FROM THE NORTHERN CORRIDOR RADIO GROUP

Preparing for the Contest.

Last year, the Northern Corridor Radio Group took part in the John Moyle Memorial Field Day Contest for the first time. Members agreed there was room for improvement!

This year, they sought a location with the potential for plenty of sky- hooks, offered shade, water and easy access to the local tavern. The site chosen was offered by a friendly farmer, located close to Bullsbrook, about 45 km north-east of Perth, near the Pearce RAAF Air Base. It fitted the bill perfectly.

A later reconnaissance party also discovered a refrigerator and shed were available for the group's use, too!

Nicholas VK6NRD (standing) with Alek VK6APK, operating on 80 metres.

A general view of the site with the Delta Loop for 20 metres in the foreground.

Bob VK6MQ, operates CW whilst Peter VK6PK, was in charge of AMTOR.

Natural Power Supply. From left: Des VK6NWU, Tony VK6ZTL, VK6AHC (seated), Alek VK6APK, Son of Ian VK6ZIC and Ian VK6ZIC.

Antennas were precut and pretested by members of the group for most bands. Antennas used were: beams for 70 cm, two and six metres; a 2-element delta loop for 20 metres; an end-fed wire for 15 and 40 metres; wire Vee-beam on 80 and a halfwave dipole on 160 metres.

FM, CW, SSB and AMTOR were used at some stage during the contest. VHF stations were operated exclusively on 'natural' power — solar and pedal (ERP = Exhausted Rider Power! ? !). Some HF contacts were made using these sources also, but the HF transceivers proved to be power-hungry, which necessitated using the generator.

Throughout the 24 hours, approximately 25 group members pedalled, pulled, climbed, struggled and operated their way through the contest, rejuvenated by liberal quantities of OHM cooked food washed down with 807s.

The success of the event was measured by a high level of participation and the enjoyment members derived from the experience.

Although tired at the conclusion, the main topic of conversation was

We will do even better next year!

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Name:.....

Address:.....

..... **Postcode:**.....

VK2 Mini-Bulletin

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
Box 1066, Parramatta, NSW. 2150

DIVISIONAL COUNCIL

The vacancies on the Council for the year were filled by May and is now up to the full strength of seven. Joining Council were Andy Keir VK2AAK and Dennis Williams VK2XDW. The other members of Council are Roger Henley VK2ZIG/NWH, Mike Burns VK2AUE, Tim Mills VK2ZTM, Peter Jeremy VK2PJ and Dave Horsfall VK2KFU.

President	Roger Henley VK2ZIG/NWH
Vice-President	Mike Burns VK2AUE
	Tim Mills VK2ZTM
Secretary	Peter Jeremy VK2PJ
Treasurer	Dave Horsfall VK2KFU
Administration Secretary	M Lavery
Returning Officer	Peter O'Connell VK2EMU

Other Office Bearers for 1987/88. Some rearrangement will be done now that Council is up to strength.

Federal Councillor	Jeff Pages VK2BYY
Alternate Federal Councillor	Tim Mills VK2ZTM
Federal Observers	Barry White VK2AAB
	Max Smith VK2YKF
Divisional Historian	Jo Harris VK2KAA
Correspondence Course Supervisor	Cec Bardwell VK2IR
Education Service Co-ordinator	Ken Hargreaves VK2AKH
Slow Morse Supervisor	Vince Roberts VK2CVR
Intruder Watch Co-ordinator	Bill Martin VK2COP
Library Officer	Aub Topp VK2AXT
Assistant Treasurer	David Thompson VK2BDT
Property Officer — Dural	Jeff Pages VK2BYY
Property Officer — Parramatta	Mike Burns VK2AUE
Broadcast and Publications Officer	Dave Horsfall VK2KFU
Components/JOTA Officer	Roger Henley VK2ZIG/NWH
QSL Bureau Liaison	Dennis Williams VK2XDW
Mini-Bulletin Editor/ NTAC Co-ordinator	Tim Mills VK2ZTM

RD CONTEST

At the moment VK4 is the holder of the RD Contest and trophy. The rules for this years event will be in the Contest Notes in this issue so please have a look at them and then set aside some time over the weekend to take part for VK2. While it may almost be the turn of another State to win, it would be nice for the trophy to spend a little time in VK2.

VK2 AWARDS

Currently the Division does not have any awards for working VK2. It has been decided to introduce a range of *Awards* for contacts made on and after the beginning of 1988. The awards are based on those being successfully conducted by other States. The major one will be a VK2 — 1988 — AWARD. It will require the working of 200 contacts in a single or mixed combination of modes. After next year the award will continue as a VK2 award. It is based on the VK1 award.

The next award to be introduced is a *Worked All New South Wales*. It is based on the VK4 Shires Award. The third major award being introduced is based on the VK3 National Parks Award. Greater detail will be given in these notes in a month or two. Some of the design work still has to be done for the certificates so Divisional Council would like to hear from anyone able to assist in this regard.

Some other special awards will be considered for activities during the 1988 year. There are many Shires and National Parks where there is little or no resident amateur activity. This will be a chance for both clubs and individual amateurs to establish stations for a weekend, or similar, to activate the area.

810s WANTED

VK2WI operates three AWA J54-800 AM transmitters in the main HF broadcast network. (See report in May AR). The final and modulator valves are 810 triodes but our stocks are getting low. Does anyone have any which are no longer required? If so, we would like to hear from you so that arrangements can be made to obtain them.

Either write to the Dural Committee, PO Box 1066, Parramatta, NSW. 2150, phone (02) 689 2417, 11 am to 2 pm Monday to Friday or 7 to 9 pm Wednesday, or call VK2WI during the call-backs.

WICEN

The new repeater unit for VK2RWS 7150 went into service from Chatswood on May 14, last. It is now a diplexed system, about eight watts to a three dB gain antenna.

A reminder of coming exercises —
Sun City to Surf on Sunday morning, August 9.
Possible car rally at Batemans Bay, September 26-27.
Canoe Classic on the Hawkesbury River, Saturday afternoon and Sunday morning, October 10-11.

ANNIVERSARY QUIZ

The top places were close. The first place went to Arthur Twomey VK2KAT. Runners-up were Jo Harris VK2KAA, Jim Swan VK2BQS and Peter Ritchie VK2HC. Thanks to all who took part, I hope some new knowledge was gained. A small group attended Dural on May 17, to celebrate the day. The fireworks evening had to be rescheduled to late May due to difficulties in obtaining a permit on the original planned date.

ATV IN SYDNEY

Regular ATV activities are being provided in the Sydney by the Gladesville ARC. They have a transmission every Wednesday evening beginning at 7.30 pm on UHF, slightly higher than channel 35, from Lane Cove West. A recording is made and replayed at 7.00 pm on Friday evening. Video tapes of some of the class instructions are put to air. These tapes are also available for borrowing. The Gladesville ARC may be contacted via their Post Box 48, Gladesville, NSW. 2111, or phone (02) 427 0530.

The Sydney ATV Group has had to leave the site of their ATV repeater and, at the time these notes were being prepared, had not established a new site.

NEW MEMBERS

We would like to welcome the following to membership of the WIA. They were in the May intake.

L A Brill Assoc	Ganmain
N Cohen VK2OP	North Bondi
N B Cupitt Assoc	Seven Hills
W J Elphick VK2DRY	Wolumla
F C Mellon Assoc	St Marys
R G Pelham VK2XDX	Griffith
S D Smith VK2MAG	St Ives
J H Sutherland VK2BJQ	Camden
J Thomas VK2AU	Greystanes
W P Truscott VK2EWT	Wahroonga
H S Virik VK2MJH	West Killara
L Wood VK2MBH	Bermagui

SUB-COMMITTEE ANNUAL ACCOUNTS

Reproduced below are the Education Service and WICEN Sub- Committee Accounts for the year ending December 31, 1986.

WIRELESS INSTITUTE OF AUSTRALIA AUDITORS REPORT

In accordance with Section 285(3) of the Companies (New South Wales) Code we hereby state that in our opinion the accompanying accounts are properly drawn up:

1) So as to give a true and fair view of the matters required by Section 269, to be dealt with in the accounts.
2) In accordance with the provisions of the Companies (New South Wales) Code.
3) In accordance with applicable approved accounting standards.
4) The accounting records and other records and registers required by that Code to be kept by the company have been properly kept in accordance with the provisions of that Code.

Signed at Parramatta
this 26th Day of February 1987
GIBSON PEARS & CO
Chartered Accountants

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE TRADING STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 1986

		THIS YEAR $	LAST YEAR $
INCOME			
Sales		12 220	13 803
TOTAL SALES		12 220	13 803
LESS: COST OF SALES			
Opening Stock	13 139		10 805
Purchases	3 812		8 118
Less:Closing Stock	11 213		13 139
		5 738	5 784
GROSS PROFIT FROM TRADING		$6 482	$8 019

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE INCOME & EXPENDITURE STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 1986

		THIS YEAR $	LAST YEAR $
GROSS PROFIT FROM TRADING		6 482	8 019
Add: OTHER INCOME			
Interest Received	2 606		2 618
Hire of Equipment	10		20
Donations	0		5
		2 616	2 643
TOTAL INCOME		9 098	10 662
Less: EXPENSES			
Advertising	2 440		2 408
Audit Fees	350		300
Bad Debts Written Off	0		5
Bank Charges	20		30
Depreciation	629		629
Insurance	274		275
Out of Pocket Expense for Service Members	663		821
Post Office Box Rental	23		0
Postage	1 403		1 871
Printing and Stationery	214		83
Repairs and Maintenance	150		33
Fixed Assets Scrapped	0		130
		6 166	6 585
NET PROFIT		2 932	4 077
Retained Profits — Beginning of Year		40 219	46 142
		43 151	50 219
Less: EXTRAORDINARY ITEMS			
Special Transfer to WIA — NSW		0	10 000
ACCUMULATED FUNDS 31ST DECEMBER 1986		$43 151	$40 219

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE BALANCE SHEET as at 31ST DECEMBER 1986

		THIS YEAR $	LAST YEAR $
ACCUMULATED FUNDS 31ST DECEMBER 1986		$43 151	$40 219
ACCUMULATED REVENUE RESERVES		$43 151	$40 219
Represented by:			
CURRENT ASSETS			
Cash at Bank	28 969		23 487
Cash on Hand	444		310
Trade Debtors	103		232
Stock on Hand	11 213		13 139
		40 729	37 168
		40 729	37 168
FIXED ASSETS			
Hire Equipment	960		960
Less Provision for Depreciation	480		384
		480	576
Office Machinery & Equipment	4 684		4 684
Less Provision for Depreciation	2 742		2 209
		1 942	2 475
NET ASSETS		$43 151	$40 219

The Secretary
NSW Division WIA
PO Box 1066
PARRAMATTA. NSW 2150

Dear Sir,
I have completed an audit on the WICEN accounts as presented to me for the year ended December 31, 1986. I have found the books to have been kept in a correct manner and consider that they are adequate. I am satisfied that the Trading Account and Balance Sheet show accurately the financial position of WICEN
A copy of the accounts follows.
Yours faithfully,
D S Thompson VK2BDT.

WIRELESS INSTITUTE CIVIL EMERGENCY NETWORK
TRADING ACCOUNT FOR YEAR ENDING DECEMBER 31, 1986

SALES			135.35
Less Purchases	Nil		
Opening Stock	1470.38		
		1470 38	
Less Closing Stock		1341.38	
Cost of Good Sold			129 00
Trading Profit for Year			6.25

Profit/Loss Account for the Year Ending December 31, 1986

INCOME			
Trading Profit		6.25	
Subscription (69)		342.00	
Grants		1750.00	
Interest		355.71	
Donations		1200.00	
			3653 96
Less Expenses			
Bank & Gov Charges		6.82	
Licenses		23 00	
Postage/Stationery		84 55	
Promotion & Training		86.38	
Travel Reimbursement		6440	
VRA Expenses		80 00	
Repairs & Maintenance		93.90	
		439 05	
Add Depreciation W/off		225 12	
			664 17
Surplus for Year			2989 79

BALANCE SHEET AS AT DECEMBER 31, 1986			
ACCUMULATED FUNDS			
Balance Brought forward 1.1.86			8156.18
Add Surplus for Year			2989 79
		$	11145.97
REPRESENTED BY			
Cash at Bank			3560.72
Stock on Hand, Badges, Clothing, etc			1341.38
Fixed Assets at Written Down Value			
Repeaters	1080.76		
Transceivers	969.73		
Generators	264.79		
Sundry Equipment	352.60		
Radio Equipment	447.19		
Packet Equipment	3141 80		
			6256 87
			11158 97
Less Subscriptions Paid in Advance			13.00
		$	11145.97

Signed: D S Thompson
Auditor 1.3.87

VK4 WIA Notes

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001

EXPO 88

At the time of writing these notes the VK4 Division is somewhat in the dark as to our participation in Expo 88. This event will take place in 1988 from April to October, in Brisbane. The site of some 40 hectares is already in preparation and is nearing completion.

Negotiations were started with the Expo Authority in 1984 and, after repeated representations by our Secretary, Theo Marks VK4MU, an interview was finally arranged with Sir Lew Edwards. Sir Lew heads the Authority. A very professional illustrated portfolio was prepared, setting out the potential of amateur radio to Expo and this paved the way to a very encouraging meeting between Sir Lew Edwards on one hand and Theo Marks and John Aarsse VK4QA, on the other.

Sir Lew has promised to recommend to his committee that the Wireless Institute be given several thousand dollars worth of space, and assistance with QSL cards. These should be forthcoming soon, as publicity for Expo around the world. Word is expected to confirm this before this issue is available.

The task facing the Division is nothing less than enormous. Setting up the exhibit is, relatively, the simple part. Putting a station on the air from the site with a special call sign, VI4XPO (maybe?), will not present any insurmountable problems. The frightening problem is people. Something like four to six people, every day, 10 hours per day for 184 days, are we equal to the task?

Bud VK4QY

ar

VK3 WIA Notes

NEW MEMBERS

The following applications were received for the month of April 1987, and accepted by Council on April 23, 1987. A warm welcome is extended to these members.

Geoffrey Agar VK3BGT, John Boyce VK3AXF, John Buxton VK3XMX, John Hawkins VK3ZLL, Roy Jones VK3CJR, David McFarlane, Paul Shane VK3KPC, Dale Smalley VK3XLN, Trevor Starritt VK3HG, R K W Steedman VK3XRS, David Webster, and Henry Yong.

Magazine Review

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic. 3087

G *General*
C *Constructional*
P *Practical without detailed constructional information*
T *Theoretical*
N *Of particular interest to the novice*
X *Computer program*

HAM RADIO — February 1987. Propagation Predictions (X). Diodes — Types and Characteristics (G N). UHF Amplifiers (C)

WORLDRADIO — March 1987. News of Amateur Activities, Marine Mobile, DX Reports, etc (G).

BREAK IN — April 1987. New Soldering Techniques (P N). 1986 SSB Contest Results (G).

CQ-TV No 137 — February 1987. News, Information and Circuits for ATV, SSTV, etc (G).

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- FULL RANGE 27 MHZ & 477 MHZ CB RADIO & ACCESSORIES
- UNIDEN SCANNING RECEIVERS
- COMPUTERS
- WELZ TP-25A 50-500 MHz DUMMY LOAD — POWER METER

Five-Eighth Wave

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA. 5039

April is always a busy month in this Division and this year proved no exception.

The Clubs' Convention, which was held on the weekend of April 25-26, was well attended with the following clubs represented:

Lower Eyre Peninsula, South East Radio Group, Alice Springs, Lower Murray, Adelaide Hills, South Coast, Elizabeth, Port Adelaide, 2nd Adelaide Scouts, SA ATV Group, ACBRO, and, for the first time, Barossa ARC. Our afternoon speakers this year were even briefer and more informal than previously, if that is possible. Mitch VK5AZM, discussed the Mount Lofty 70 cm repeater, John VK5SJ, spoke about the National Old Timers Club, and Rick VK5KRX, gave a demonstration of audible and sub-audible tone access. It was probably just as well that they were brief as we ran out of discussion time on the Sunday as it was.

Despite our fears to the contrary, we managed to get enough ladies to help with the catering, although one or two more would have made life even easier. Jill Wardrop did an excellent job as our only full time helper, but she was joined at various times by Lorraine Maddern, Joy VK5YJ, and Jann Westerman. We thanked the ladies with a small gift each, but Gill has also asked me to thank those people who did help at various times with washing up, floor sweeping, etc, all of which was greatly appreciated.

Our speaker on Saturday evening was Graham Horlin-Smith VK5AQZ, who showed a video of the many activities which took place during our Jubilee year and spoke a bit about the year in retrospect. We thanked Graham by presenting him with a Jubilee Mug and a brass key ring which read: "Expensive, but worth it!" a sentiment which I felt summed up our feelings. Actually, I had to admit to Graham, that he had proved us all wrong, and, despite our fears to the contrary at various times last year, the Jubilee Activities had not only come out "in the black" but were showing a healthy profit! I would like to thank all those people mentioned, plus the members of Council and anyone else who did anything to make it successful once again.

The following Tuesday night saw us not only holding our AGM, but also celebrating the 10th Anniversary of the Official Opening of the Burley Griffin Building as our Headquarters.

At the Annual General Meeting the following were elected to Council for the next two years — (the positions have been decided since).

Jenny Warrington VK5ANW	President
Don McDonald VK5ADD	Secretary/Vice-President/Alternate Federal Councillor
Hans Van Der Zalm VK5KHZ	Clubs and Country Members Representative
Alan Mallabone VK5NNM	Education Officer and Assistant Membership Secretary
We join	
Bill Wardrop VK5AWM	Treasurer & WICEN Director
Ken Westerman VK5AGW	Membership Secretary
Rowland Bruce VK5OU	Federal Councillor & Vice-President
Dick Boxall VK5ARZ	Immediate Past President
Bob Allan VK5BJA	Public Relations/ DOC Liaison/SATAC Co-ordinator
Peter Maddern VK5PRM	Minutes Secretary

I hope that Hans and Alan will enjoy their time on Council and find it a worthwhile experience.

At the special part of the evening, to celebrate our 10th Anniversary of the opening of the building, an edited version of the video of the original opening ceremony was shown by John Ingham VK5KG, and I would like to thank John for taking the time to edit it and also arranging the large-screen monitor on which it was shown. Many of our invited guests were unfortunately not able to be with us due to illness of one sort or another, but amongst those we were able to welcome back were:
Geoff Taylor VK5TY, Bob Murphy VK5MM, Gerry Preston VK5PI, Keith De Kock, and Ian Hunt VK5QX.

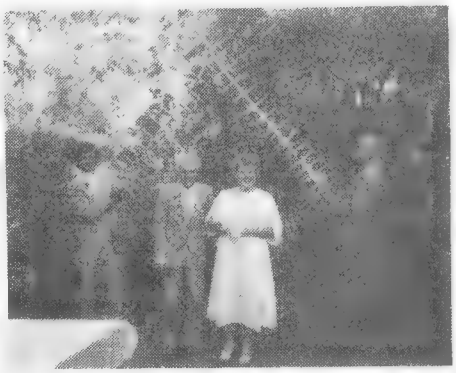
The showing of the video was followed by a special supper and I would like to thank Gill Wardrop, Lorraine Maddern and Joy VK5YJ once again for their invaluable assistance. Joy also organised a delicious Birthday Cake with 10 candles, which were blown out, and the cake cut, all with due ceremony.

Jenny VK5ANW cuts the cake at the celebrations to mark the 10th Anniversary of the Opening of the Burley Griffin Building (Headquarters of the VK5 Division). Joy VK5YJ (left of Jenny) organised the cake.

Steve VK5AIM and bride Sue, cut the cake.

I may not have been an official function, but I was very pleased to be present, on Saturday May 2, at the wedding of Steve Mahony VK5AIM (our Disposals Officer and sometime Auctioneer), and the former Sue Cocceti. Tony Chapman VK5JJ was the Bestman, Steve's daughter, Pam, was the Bridesmaid, and there were five or six amateurs amongst the guests, so perhaps it was not surprising when, after the Ceremony, a Guard of Honour was formed by Rob Gurr VK5RG and Tony holding "Crossed Yagis."

Steve VK5AIM and bride Sue sign the Marriage Certificate watched by Steve's daughter Pam (Bridesmaid) and Tony VK5JJ (Bestman).



Bestman, Tony VK5JJ (left) and recently retired DOC State Manager, Rob VK5RG, provide a guard of honour at the wedding of VK5 Disposals Officer, Steve VK5AIM and his bride Sue, in May.

We wish Steve and Sue all the best for their future together.

AUGUST MEETING

We hope to have a very special speaker from overseas for our August meeting — keep listening (and watching) for more information. In the meantime, ensure you keep August 25 free.

MORE JUBILEE 150 AWARDS

1384	KX6BF 1st Marshall Island
1385	G4BNB
1386	VK6AEM
1387	VK6KBE
1388	ZF1RC 1st Grand Cayman
1389	YC9BMU
1390	YC7ZAC
1391	YC0MED
1392	ZL1AXV

Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

MUCH APPRECIATED

We are pleased to note that the excellent standard of *Amateur Radio* magazine has been maintained over the years and urge all involved to keep up the good work as it is very much appreciated.

Thank you,

The Urunga Radio Convention Committee
PO Box 433,
Coffs Harbour, NSW. 2450.

OF GENERAL INTEREST

Following is a copy of a letter from the Department of Communications, Canberra, received by me.

I believe this letter should be published in the interests of amateur radio.

73,

Ken Richards VK3CKK,
2/15 Neilson Street,
Bayswater, Vic. 3153.

Dear Mr Richards

I refer to your letter seeking reconsideration of the conditions recently advised in relation to soliciting by amateurs for Third Party Traffic (TPT).

Decisions taken in connection with the amateur radio service cannot be made in isolation from the demands of other radiocommunications users and private network operators in general. To allow amateurs to solicit to carry TPT, except in emergency circumstances, could set a precedent for policies involving other radiocommunications users. I must therefore re-affirm the Department's previous advice that amateur operators can only solicit for messages as an aid to providing TPT communications in a declared emergency situation or natural disaster.

You may be assured that the Department is very conscious of the valuable contribution made by dedicated amateurs in times of emergency. This restriction on soliciting, however, does not detract from the ability of the Amateur Service to carry TPT messages and I believe is in the best interests of the amateur fraternity when the primary purpose of the amateur service is taken into account.

Your sincerely,

Signed: D HUNT,
Manager Regulatory,
Operations Branch,
Radio Frequency Management Division
Canberra.
April 28, 1987.

GOOD CUSTOMER RELATIONS

Over the years there has been several letters to the Editor *Over to You* published which slate some of the advertisers in *Amateur Radio* and elsewhere for some shady practices. It is more often dissatisfied customers who write letters of complaint and issue warnings to others where people are less inclined to write letters of a complimentary nature.

I wish to relate one such excellent customer relations exercise which occurred recently.

In July 1983, on a very rushed business trip to Sydney, I visited "Emtronics" with the intention of purchasing a CW filter for an FT101. At that time, unfortunately, I didn't have with me the technical information (eg frequency, etc), so had to rely on the company's advice that the filter was okay. On returning to Auckland after checking the manual, I discovered that the filter was for the FT101Z and not for the FT101.

As I travel to Sydney from time to time, I decided to return the filter on the next visit however, the opportunity didn't again arise until April 1987.

A lapse of some four years had occurred and I was unable to locate the original receipt. The situation was explained to the Emtronics staff. The filter was gladly accepted back and exchanged for another electronic item for the shack.

As the gap of some four years had occurred since the original purchase I had expected and would have accepted a point blank refusal, especially as I has lost the original proof of purchase.

To me this is what good customer relationship is all about, a more than satisfied customer. I must without qualification give them a well earned 10 out of 10.

Thank you Emtronics.

Yours faithfully,

David A R Rosan ZL1AFQ,
PO Box 65-147,
Mairangi Bay,
Auckland 10, New Zealand.

THE FUN OF DXING

DXing is like deep sea fishing, you never know what will come up next.

I recollect a J-station who did not want a QSL card. Another USA amateur who claimed an antenna on a hill 700 feet (213 metres) high using coaxial cable 600 feet (182 metres) long. He apparently lived in a valley and had a fairly good signal.

On another occasion I had a QSO with three J7-stations, worked on three different frequencies on 15 metres at different times in the morning and the same town, surely a coincidence. An amateur in Israel was using a tower 150 feet (45 metres) tall and had a good signal.

Finally, there was the amateur in Florida whom I QSOed on 15 metres and after a long contact he began to drop-out. He made some remarks about the wife which I queried twice, still couldn't understand, so gave him my 73 and commenced a contact with a fellow amateur on a two-metre sched.

My wife called out to say I was wanted on the phone. I said to tell them to hold on, but she called out that it was America so I rapidly went to the phone. It was the amateur from Florida to explain what he had said about the wife, not to send a card as he would write and went off after sending his best. What next!

Lately, 20 metres has been kind to us. I would beseech those keen VKs when calling CQ to first check the frequency in use before engaging in long calls and interrupting others working on the band. Please do not spoil the fun!

Regards to all.

J Brinkman VK2IS,
61 Gundagai Street,
Coffs Harbour, NSW. 2450.

OLD PIECE OF GEAR

This sketch is of an old piece of radio gear that I have recently bought, which may be of interest to others. Is is a variable inductor, beautifully made of moulded bakelite. It came in the original box with mounting instructions and had not been used. I thought about using it for an antenna tuner of some sort for receiving only. I have an FRG7 receiver, but the pre-select does nothing for 0-500 kHz reception as the receiver was not designed for reception below 500 kHz, although many beacons can be heard "down" there.

Whilst experimenting with the old variometer and connecting it in series with my wire antenna, I was surprised to hear the beacons below 500 kHz become much louder and, with better selectivity when the inductor was tuned. I was very impressed that an old piece of radio gear could make such a difference to a modern set.

Yours sincerely,

Dave Mann VK3DBJ,
94-96 Felix Crescent,
Ringwood, Vic. 3134.

NOVICES ON TWO-METRES

I am of the opinion that nobody should be given any privileges without passing the appropriate examinations.

Would you not agree that when someone has done his or her study and passes the exams that the chances are that they will appreciate the privileges much more and by doing so creating better amateurs at the same time.

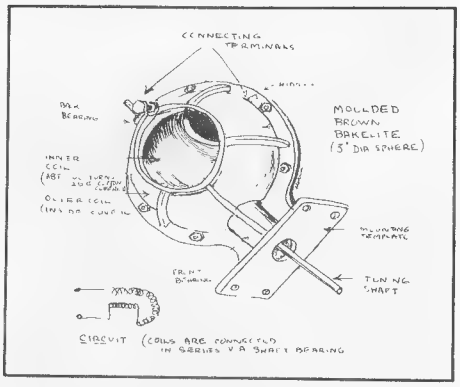
Where is all this going to end?

The next thing to happen is Limited Operators asking for the whole 20-metre band.

Of course I would be against that too.

The qualifications to become an amateur has to be kept up at all times. There is no way you can force anyone to obtain his or her licence. One has to be interested in the hobby otherwise the "quality" of operators will suffer.

G Elijzen VK2XMM,
9/22 Putland Street,
St Marys, NSW. 2760.


CONNECTING TERMINALS
MOULDED BROWN BAKELITE (5" DIA SPHERE)
MOUNTING TERMINAL
TUNING SHAFT
CIRCUIT (COILS ARE CONNECTED IN SERIES VIA SHAFT BEARING

Sketch of a Radio Variometer. The year of manufacturer is unknown, however it was made by Gilfillan Bros Inc, Los Angeles, New York and Kansas City.

SINCERE THANKS

The *Traveller's Net* can be heard on 14.106 MHz daily at 0300 UTC, and having been using it to keep in touch with VK3BII, I can recommend it to anyone travelling.

I would like to thank VK3s KV, PN, YK, UX; VK5s FV, ARM; VK6s BO, YE and, last but not least, ART. I am sure that anyone travelling could receive news from home if messages were left in Melbourne with Arthur VK3UX, Adelaide Richard VK5ARM, and Perth Arthur VK6ART.

C James Pope VK3DPO,
23 Ayr Street,
Doncaster, Vic. 3108.

IT'S A SHAM!

I have taken *Amateur Radio* for several years and I have enjoyed it greatly. I very often quote from it when selecting material for our Amateur Radio News Service Bulletin. It is excellent.

On page 54 of the January 1987 issue, there is an article relative to the origin of the word "Ham." We have been trying for several years to halt this information because it is a pure sham!

The ARRL, many years ago investigated this story. No record has ever been found of such a meeting in the records at the capital. Further, the ARRL found that the word "Ham" had been used for an amateur radio operator many years previous to 1911 when this meeting is supposed to have been held.

I would suggest that, if you wish, contact the ARRL who will corroborate the above.

Sometimes a sham goes all over the world once it gets started! How about sending those cards to

the fellow in Great Britain? He was inundated with cards, but it turned out to be a pure sham!

Probably 40 years ago I wrote an article "Beware of a radio amateur for he is a strange being possessed of many devils" as the start. A YL/YF organisation in South Africa reprinted it but gave no source. It was reprinted all over the world with credit given to them, not me!

Oh, well! Keep up the good work, you are doing excellently.

73,

Amateur Radio News Service,
Ralph V (Andy) Anderson K0NL,
Editor,
528 Montana Avenue,
Holton, Kansas 66436, USA.

HF BEACONS

Most amateurs by now will be familiar with the beacons on 14.100 MHz, using a single frequency time sharing system. Also, most would know of the 28 MHz beacons and the proposal to group them into 28.190 to 28.199, with a world-wide timer sharing network on 28.200 MHz.

However, how many are aware of the expansion of the International Band Plan on 21 MHz? This is to be undertaken after consideration by the HF Working Group of Region 1 (Europe) and the nominated frequency is 21.150 MHz. So, be warned now, you could be asked to QSY because you are on or near a beacon frequency. I have not seen any comment from our Region 3 organisation on this subject.

Neil Penfold VK6NE,
2 Moss Court,
Kingsley, WA. 6026.

NON-RENEWAL OF WIA MEMBERSHIP

I am very concerned about the tenor of your editorial in the May 1987 issue of AR. My impression is that you do not believe the 1000 individuals who did not renew their WIA membership for 1987 when they say "the cost was more than they could afford."

I also suggest that there is an insignificant minority of the 1000 who do **not** wish the WIA to represent our amateur radio interests. In fact, I believe that the high cost of membership is now a valid reason for non- renewal.

We all know that our general living expenses are now increasing at a greater rate than our incomes, whether we are pensioners or wage and salary earners and it is becoming harder to manage family and personal budgets.

This is not the forum to discuss the reasons for this change in fortune but, suffice to say, I now believe that the cost of WIA membership is too high for some individuals.

In such financial circumstances, we all have to make priority decisions on where we can spend our cash. The first to go are the non-essential expenditures and, no doubt, some of our previous WIA members have, of financial necessity, decided not to renew their membership.

In my own case, I have deferred or abandoned some projects/activities in my amateur shack because there are now other priorities for which I must allocate my spare or "hobby" cash. I have deferred my intended experiments in packet radio because I am loathe to spend the $300 plus at this time for the hardware and software required to get going on packet radio. However, I hope I can proceed with these experiments prior to the end of 1987! It is quite possible that by the end of 1987, my WIA membership renewal may be included in my "non-essential" expenditure which may be cut from my 1988 budget!

Therefore, I think it is time for FE to make some hard decisions to minimise further loss of members, and avoid the inevitable financial collapse for which there are clear warning signs.

My first suggestion is to cease publishing *Amateur Radio.* We could replace this with a two or three page bulletin sent to members, say each quarter. This would be produced in the WIA Federal Office and contain all necessary policy items, important extracts from FE minutes of meetings and correspondence with DOC etc. This would result in a dramatic reduction in the annual membership fee. This is a very painful suggestion, but it is clear that the excellent AR magazine is no longer financially viable, in spite of the large voluntary effort that goes into its production and distribution.

My second suggestion is even more important. The WIA should immediately cease negotiations with DOC to take over responsibilities for conducting amateur certificate examinations. This is not and never has been a function that should be taken over by a non-Government organisation such as the WIA.

Under the ITU Conventions which Australia has signed, DOC has been charged, inter alia, with the responsibility of licensing amateur radio operators and looking after their interests. It is clear that DOC is seeking to abrogate (not devolve) its responsibility to conduct amateur radio examinations, for which it charges a fee for service anyway. If DOC succeeds in unloading this function, I would expect some compensating reduction in my annual amateur licence fee of $26. If there is no reduction, I am entitled to ask "What is DOC doing with the money?" If there is no satisfactory explanation forthcoming, I always have the option of advising the Minister of Communications through my local Federal MP, that I will be expressing my opinion of his Department in the ballot box at the next Federal election!

Yours faithfully,

W D Verrall VK5WV,
7 Lilac Avenue,
Flinders Park, SA. 5025.

As a fully paid up member of the WIA, I feel qualified to comment on your editorial in the May issue of AR. I have not been a radio amateur for very long but have quickly developed a passion for the hobby. My own particular financial circumstances dictate that the demands of three young children at primary school, a mortgage, etc, take precedence over my desires to achieve "state-of-the-art" in radio technology. My immense enjoyment is solely derived from a pre-loved FT101B, a home-brew QRP (thank you Drew Diamond) and three wire dipoles at 30 feet. I can sympathise with others in a similar position who find it hard enough to find the annual licence fee, never mind the WIA subscription.

In my spare time I have started a radio club at the school where I teach and been involved in running a JOTA station. I know only too well that the barrier these interested youngsters meet is financial. Parents are only too keen to finance a computer to assist their children's education but see little worth in helping to buy a transceiver. If it is the true desire of the Institute to attract and encourage new blood into the fraternity and achieve a representative membership, it is high time the financially secure considered those in a different position.

Might I suggest that the membership subscription be purely nominal, say $5 per annum — hopefully enough to cover the costs of registration. Thereafter, members to subscribe to a range of other services such as the journal, *Amateur Radio.* Surely it is highly desirable that many more amateurs join the WIA even if they look over someone else's shoulder to read AR. With increased membership, the negotiating stance of the organisation would be enhanced and it could truly call itself a representative body. Additional services could be offered particularly attractive to the young and less financially secure. How about each State running a surplus parts pool? I'm sure a garage somewhere could be used to store and recycle all those surplus goodies sitting redundant in the junk box. As an option, members could subscribe to a quarterly newsletter listing items that could be theirs for a nominal service charge an the return postage.

WIA Executive, what is needed is a great deal of lateral thought and not an attempt to shame and embarrass those whose financial situation precludes them from the organisation. The public at large needs re-assuring that amateur radio is a hobby for all regardless of race, colour, creed or bank balance.

Yours sincerely,

Steve Curtis VK3CAX,
13 Barakee Drive,
Somerville, Vic. 3912.

Your May Editorial was no doubt interesting to those who read it, but how many of the "offenders" do you really think would read it and react favourably?

I would suggest that a more positive approach be made to those people by the WIA, and journal space be devoted to more important factors which are eroding amateur radio and hence WIA membership.

Why are an alarming number of members failing to renew subscriptions? In my opinion they are disillusioned re the present scene. Amateur radio was established as a scientific hobby. Today it is becoming a farce.

For instance, what is being done to combat the policies and tactics of the manufacturers, retailers and advertisers who are "ripping us off" with the promotion of "black boxes" and denying us the supply of certain components required to construct projects presented in the journal?

What is being done at basic operator-training level to educate aspiring operators in simple factors pertaining to "human-relations; and "on-air" behaviour? I could go on and on to list many more factors which are degrading amateur radio.

Our hobby is being corrupted by commercial interests and selfish ignorant people. None the less it will continue long after any possible demise of the WIA. If you wish amateur radio to continue and members to remain financial please fire a heavier salvo with the medium at your disposal.

There are probably thousands of members sharing my concern re this matter. It is not simply a case of "How much is the Wireless Institute worth?" It is a case of "How much is amateur radio worth?"

Restore amateur radio to its original concept and the "black sheep" will flock back to the treasury to once again enjoy the journal, other WIA facilities and the true spirit of amateur radio.

Yours faithfully,

Maurie Dewhirst VK5PMD,
4 Hawke Street,
Linden Park, SA. 5065.

EXCELLENT SUGGESTION

With reference to AR, May 1987, the following comments:

1. Page 47, *Pounding Brass,* excellent suggestion Gil, but a low licence fee should be applicable, if only to prove "the value for money" they are getting.
2. Page 51, *Frequency Hopping,* I am sorry, but the RSA (Republic of South Africa) Armed Forces were one of the first, if not **the** first, to employ this method of communications. The first I read about it was some seven or eight years ago.
3. Pages 1-64, very interesting issue, keep it up.

73 de

John Aarsse VK4QA,
PO Box 211,
Nambour, Qld. 4560.

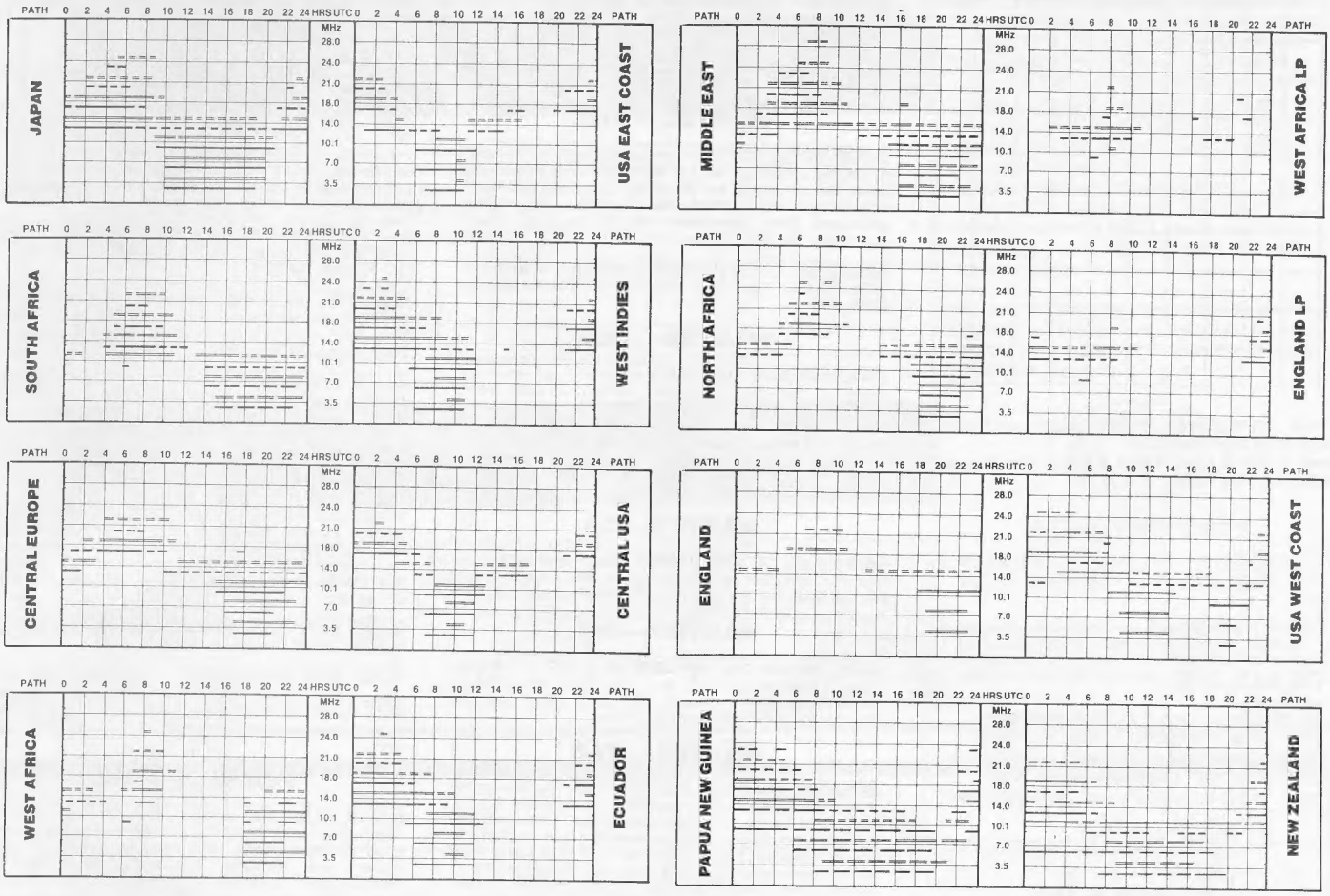
Silent Keys

It is with deep regret we record the passing of —

MR I S GRAHAM	VK4QO
MR B E HARDINGE	VK3TA
MR T D LACKENBY	VK2BOQ
MR A R S ANDERSON	L40137
MR RAY JONES	VK3RJ
MR DONALD LONGFIELD	L30516
MR G W MALLOWS	VK3AWM

Ionospheric Predictions

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND

From Western Australia (Perth)

From Eastern Australia (Canberra)

Mixed mode dependent on angle of radiation (long broken lines).

Better than 50% of the month, but not every day (continuous lines)

All paths unless otherwise indicated; (ie LP = Long Path) are Short Path.

Less than 50% of the month (short broken lines).

Predictions are presented courtesy of the Department of Science, IPS Radio and Space Services, Sydney.

Solar Geophysical Summary

QSP

—MARCH 1987

SOLAR ACTIVITY

Solar activity was low with no energetic flares being observed, though an important type was observed on the 13th. The sun was without spots on 12,13 only. At other times, there were a number of small sunspot regions visible on the solar disc.

The 10 cm flux values ranged from a low on 70 (12,13th) up to a high of 78 (8th). The monthly averaged value was 74, the highest since November 1986, reflecting the increase in the number of days with visible sunspot regions.

The abundance of 'new cycle' regions in the last few months make it very likely that we have already passed the solar minimum. If so, then it is likely that the minimum occurred in October or November last year. The yearly averaged value sunspot number for September 1986 was 12.4. The yearly averaged value should again drop in October and perhaps November. The monthly average sunspot number was 14.8, the best also since November 1986.

GEOMAGNETIC ACTIVITY

March was more disturbed than recent months with a number of disturbed days. Most were fairly weak; the most disturbed day was the 27th when the A-index reached 25.

Solar activity increased quite dramatically over the period April 5 to 24 with the 10 cm flux figures reaching 101 on the 11th. Band conditions were extremely good for over two weeks going down after the 24th.

—Extracted from Solar Geophysical Summary as supplied by the Department of Science IPS Radio and Space Services

ar

COMPUTER HAND SIGNALS

SOME PEOPLE LIKE to talk with their hands. Now you can use your hands to talk to your computer, using an electronic glove and ultrasonic sound.

The theory, apparently, is that the hand is quicker than the mouse, the small roll-around devices that correspondingly move a pointer on the computer screen. When you are pointing to what you want, a click of a button triggers it.

The new glove is wired with sensors that can tell when each finger clenches, and with two ultrasonic transmitters, like those used in many television remote controls. A receiver attached to the computer can follow the position of the glove in three dimensions.

The *Z-Glove* is available in three sizes for left or right hand use. The first model was only available for Commodore 64/128 versions, but an IBM PC version is believed to be coming.

Perhaps some day, this will be the only way to beckon our robot dogs! ! !

—Adapted from *Gernsback's Outlook*, February 1987

MORSEWORD SOLUTION

	1	2	3	4	5	6	7	8	9	10
1	—	•	•	•	•	—	•	—	•	•
2	•	•	—	•	•	—	—	•	•	•
3	—	—	•	—	•	•	•	—	•	—
4	•	•	—	•	•	•	—	•	—	•
5	•	•	—	•	•	•	•	•	•	•
6	•	•	—	•	—	•	•	—	•	•
7	—	•	—	—	•	•	•	•	•	—
8	•	—	—	•	•	•	—	—	•	•
9	•	•	—	—	•	—	—	—	•	•
10	•	•	—	•	•	•	•	•	•	—

Across: 1 bend 2 fade 3 mask 4 fur 5 uses 6 earl 7 twist 8 wipe 9 image 10 fist
Down: 1 cide 2 used 3 root 4 fear 5 sins 6 give 7 alp 8 cap 9 vies 10 fix

DEADLINE

All copy for inclusion in the **September 1987** issue of *Amateur Radio,* including regular columns and Hamads, must arrive at **PO Box 300, Caulfield South, Vic. 3162,** at the latest, by **9 am, July 20, 1987.**

Hamads

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write ***each*** on a separate sheet of paper, and include all details; eg Name, Address, Telephone Number, on both sheets. Please write copy for your Hamad as clearly as possible. ***Please do not use scraps of paper.***

- Please remember your STD code with telephone numbers
- Eight lines free to all WIA members. $9.00 per 10 words minimum for non-members
- Copy in typescript, or block letters — double-spaced to ***Box 300, Caulfield South, Vic. 3162***
- Repeats may be charged at full rates
- QTHR means address is correct as set out in the WIA current Call Book

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows:
$22.50 for four lines, plus $2.00 per line (or part thereof)
Minimum charge — $22.50 pre-payable

Copy is required by the Deadline as indicated on page 1 of each issue.

TRADE ADS

AMIDON FERROMAGNETIC CORES: Large range for all receiver and Transmitting Applications. For data and price list send 105 x 220 mm SASE to: **RJ & US IMPORTS,** Box 157, Mortdale, NSW. 2223. (No inquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Lane Cove, NSW. Webb Electronics, Albury, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

WANTED — NSW

FC-707 ANTENNA COUPLER: FV-707DM Digi VFO. Frequency counter late model, no kits please. Valve type GDO. Data & reference books on Ics, transistors, PLL chips, late model 35 MHz dual beam CROs. Items would have handbook & be in 1st class cond. A Walsh L20181, QTHR. Ph:(048) 61 2092.

HANDBOOK/WORKSHOP MANUAL: for the FTDX-400. Also Yaesu FT- 101 or FT-77. Price & particulars to VK2DLM, QTHR. Ph:(075) 36 5868.

VK2WI REQUIRES 810 TRIODES: as spares for the AM HF Txs. See VK2 Minibulletin notes for more details.

WANTED — VIC

CHEAP HF LINEAR: Old commercial such as FL-1000, FLDX-2000, FL-2100, etc, or home-brew multi or mono band unit working or not. Anything capable of 400 watts considered. Will collect SE Australia. All replies answered. Steve Jenkinson VK3YH, c/- Post Office, Leitchville, Vic. 3567.

KENWOOD TS-120V HF TCVR & MANUAL: Reasonable price paid for good unit. VK3CXP, QTHR. Ph:(03) 366 5060.

WANTED — QLD

EX-SERVICEMAN RESTORER: requires 2 volt valves for Army 62 set CV1331 (APR12, VP23) CV1306 (AR8, HL23DD) CV65 (PEN25). Also 7700 kHz crystal for Air Force AR17 receiver & manuals for BC348 & BC639 US Air Force Receivers. VK4EF, QTHR. Ph:(07) 38 1803.

IC-740 MOBILE TCVR: or similar in top condition. Details to John VK4SZ. Ph:(070) 61 3286.

WANTED — SA

MINI-PRODUCTS HQ1 HYBRID QUAD MINI-BEAM: in working condition. Reasonable price. Also rotator to suit but not essential. Bill VK5NWL, QTHR. Ph:(08) 255 6976.

WANTED — WA

YAESU MUSEN FT-7 OR FT-7B HF TCVR: in working order. A Benbow VK6NSX, c/- PO Karridale, WA. 6288 or Ph:(097) 58 5527 between July 3-20. After July 20 Ph:(095) 25 1275 in the evening please.

WANTED — TAS

NETWORK ANALYSER ACCESSORIES: for GR model 1710. P2 transmission reflection bridge 50 Ω, P5 immittance probe, Pi transmission tee, 1 coaxial line U-shape with GR874 locking connectors 2 inches long. 3 coaxial lines (as above) with built in 14 dB pads. Plus various terminations, pads & lines, etc. Trevor VK7TB, 9 Norfolk Street, Perth, Tas. 7300. Ph:(003) 98 2118 (BH) or (003) 24 4289 (AH).

TAIT 196: Circuits, manuals, tune-up data, parts, etc, for Tait T-196 UHF tcvr & Telair car phone. Rick L30350, QTHR. Ph:(004) 96 1240.

FOR SALE — ACT

YAESU FRG-7700M: 50 kHz to 30 MHz, all options; FM, VHF, memories, antenna tuner. $850. Yaesu FT-290R, all options; cradle, scan mic, desk mic, nicads, port case. $450. Kenwood TR-2500, all options except mobile stand. $450. IDS-60 RS232 break-out box. $160. Osborne Executive, 128k, CP/M 3-plus, tons of S/W inc DBASE 11, modem progs, $1800. Brother HR 25 daisywheel printer, cut sheet & tractor feeders, 3 char sets. $1300. All as new & with all manuals. VK1ZVR. Ph:(062) 58 9333.

FOR SALE — NSW

COAXIAL CAVITY FILTERS: 4 TCA brand, high band VHF. What offers? VK2DLI, QTHR. Ph:(049) 32 6311.

ICOM PS-20 POWER SUPPLY: with internal speaker, 13.5V ■ 20 amp. Excellent condition very little use. $200. KW Electronics multi-band dipole all-weather traps. $60. Assorted 2m & 70 cm 6, 12 & 17 element Yagis built to NBS specs. Offers? Larry VK2EOY. Ph:(02) 949 3124.

KENWOOD TS930S TRANSCEIVER: fitted with YG-455N-1 250 Hz CW filter. Excellent condition. $2100 ONO. BNOS 25 amp (continuous) power supply with 30 amp meter $225. Green screen 12 inch VDU (Hitachi) $100. Owner returning to UK. George VK2EZA/G6VS, 12 Selwyn Avenue, Cambridge Gardens, NSW. 2750. Ph:(047) 30 1666.

SWAN 500C & P/S: Linear amplifier pair 813. Valves 6HF5, 813, 7360, 6GK6, 6LQ6/6MJ6. Buyer to collect. VK2TG. Ph:(02) 651 3006.

YAESU FT-101Z: modified digital, fan, mike, service manual & spare valves. $550 plus freight. Jim VK2IS, QTHR.

FOR SALE — VIC

ICOM IC-271A 2 METRE ALL-MODE TRANSCEIVER: 32 memories C/W instructions in box, 25W output $1000. Mirage linear amp 2 metre all-mode 160W output 16 dB preamp. $400. R-1000 Kenwood communications receiver digital display 200 kHz-30 MHz. C/W instructions & service manual. 240 VAC- 12 VDC. $450. Ph:(03) 786 7902.

KENWOOD R-1000 GENERAL COVERAGE COMMUNICATIONS RECEIVER: 200 kHz-30 MHz range, AM (wide & narrow), SSB, LSB &CW, quartz clock. Ex cond $350. Valves, 6BZ6, 12AT7, many others. $2 ea; 4x6146B (new) $7 ex; 4x4CX250B, $40 each new. AWA carphone junior installation & 20W FM. MR20A carphone instruction books. Skyphone VC-10 transceiver handbook. AWA carphone base station test power unit w cables, good cond. Best offer. 'Ham Radio' magazines 1968-1985; '73' 1965-1974 period incomplete; 'QST' 1960- 1968 period a few issues; 'CQ' 1959-1970 almost complete; 'VHFer' 1965-1967; Australian Call Books /58-/66. Best offer. All GC. Ph:(055) 62 6016.

REALISTIC PRO-2020 VHF/UHF SCANNING RECEIVER: 20 memories. VHF — 30-50/108-136/138-174 MHz. UHF — 410-512 MHz AM-FM. Very good condition. $300. John L30479, QTHR. Ph:(058) 21 0846 AH.

SHACK CLEANOUT: Pair of 3-1000Z, pair 4-250, pair 4-125 valves. All new & with sockets to suit. Four 6JE6C (6LQ6). Many other new & used valves. Home-brew HF linear using four 811As, not working. HT plate transformer, centre taped 3.5 kV, 2 kV, 2 KVA, new. Many roller inductors, wide spaced air variable capacitors, etc, etc. VK3DBB, QTHR. ph:(059) 41 1351 AH.

TANDY LCD POCKET TV VHF/UHF: Also ideal as video monitor, ex cond $200. 4 channel pocket scanner, VHF/UHF. Good cond. $90. DX-100 analogue comms receiver. Good cond. $60. Sanyo BCST HF receiver. Good cond. $50. Station Master vertical antenna. $60. Darrin. Ph:(03) 877 2412.

VZ-200 RTTY DECODER KIT: (Dick Smith) $30. Ian VK3CH, QTHR. Ph:(03) 329 6949.

YAESU 207R HAND-HELD: C/w Yaesu NC3 fast pulse charger (auto cut-out). PA2 DC power adaptor for mobile & brand new FNB2 nicad pack. External hand mic. Original packing & manuals. $290. VK3XV. Ph:(03) 555 6281 after 5 pm.

FOR SALE — QLD

DRAKE C-LINE R4C & T4XC: Full coverage capability receiver, amateur band transmitter. Very reliable rig in good condition, with many features found on more modern sets, including dual VFOs, notch filter, etc, manuals. $550. John VK4SZ, QTHR. Ph:(070) 61 3286.

FOR SALE — SA

TRIANGULAR BASE STEEL TOWER: 30 foot. Chris VK5KST, QTHR. Ph:(08) 228 5893 (BH), (08) 332 7275 (AH).

FOR SALE — WA

YAESU FT-101E: with 27 MHz. $240. Lindsay VK6ZID.

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Coaxial Cable Specials

Low Loss VHF/UHF Cables

Description	Trade & U.L. Type Number	AWG (Stranding) Dia. in In. Nom. D.C.R.	Insulation & Nominal Core O.D. Inch	Insulation & Nominal Core O.D. mm	No. of Shields & Material Nom. D.C.R.	Nom. Imp. Ω	Nom. Vel. of Prop.	Nominal Capacitance pF/ft.	Nominal Capacitance pF/m	Nominal Attenuation MHz	Nominal Attenuation db/100 ft.	Nominal Attenuation db/100 m
	9913 80C	9½ (Solid) .108 bare copper .90Ω/M' 2.95Ω/km	Semi-solid Poly-ethylene .285	7.24	Duobond II® + 88% tinned copper braid 1.8 Ω/M' 6.0 Ω/km 100% shield coverage	50	84%	24	78.7	50 100 200 400 700 900 1000 4000	0.9 1.4 1.8 2.6 3.6 4.2 4.5 11.0	3.0 4.6 5.9 8.5 11.8 13.8 14.8 36.1
						Black PVC jacket.						

BELDEN 9913 low-loss VHF/UHF coaxial cable is designed to fill the gap between RG-8 to RG-213 coaxial cables and half-inch semi-rigid coaxial cable. Although it has the same O.D. as RG8/U coaxial, it has substantially lower loss, therefore providing a low-cost alternative to hard-line coaxial cable. Your special price from ACME Electronics is only $4.84 per metre.

BELDEN Broadcast Cable RG-213/U MIL-C-17D is only $5.23 per metre, or BELDEN 22385 YR Commercial Version RG213, the same specification as 8267, for only $2.14 per metre. *Prices do not include Sales Tax.

For more information about the above, or any other BELDEN cable, simply contact our resident amateur radio operator, Colin Middleton (VK3LO) or our sales department.

Coaxial Cables

Description	Trade & U.L. Type Number	AWG (Stranding) Dia. in In. Nom. D.C.R.	Insulation & Nominal Core O.D. Inch	Insulation & Nominal Core O.D. mm	No. of Shields & Material Nom. D.C.R.	Nom. Imp. Ω	Nom. Vel. of Prop.	Nominal Capacitance pF/ft.	Nominal Capacitance pF/m	Nominal Attenuation MHz	Nominal Attenuation db/100 ft.	Nominal Attenuation db/100 m
RG-213/U MIL-C-17D	**8267†** 1354 60C	13 (7x21) .089 bare copper 1.87Ω/M' 6.1Ω/km	Poly-ethylene .285	7.24	Bare copper 1.2Ω/M' 3.9Ω/km 97% shield coverage	50	66%	30.8	101.0	50 100 200 400 700 900 1000 4000	1.6 2.2 3.2 4.7 6.9 8.0 8.9 21.5	5.2 7.2 10.5 15.4 22.6 26.3 29.2 70.5
						Black non-contaminating PVC jacket.						

ACME Electronics

205 Middleborough Rd, Box Hill. Vic. 3128.
Ph: (03) 890 0900.
Fax: (03) 899 0819

SYDNEY (02) 648 2255
ADELAIDE: (08) 211 8499
BRISBANE: (07) 854 1911
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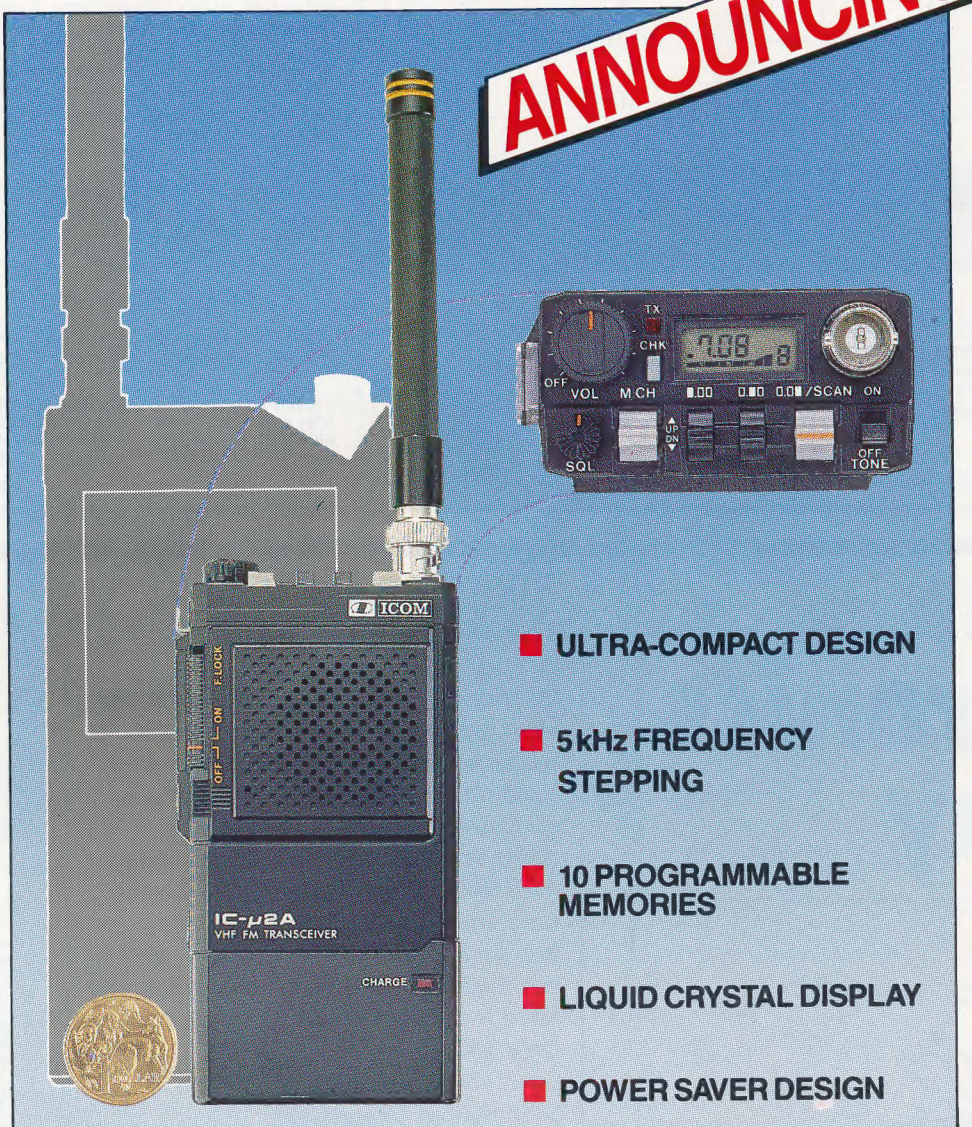
Odds on our favourite handheld transceiver just got smaller.

ANNOUNCING THE NEW

IC-μ2A



- ULTRA-COMPACT DESIGN
- 5 kHz FREQUENCY STEPPING
- 10 PROGRAMMABLE MEMORIES
- LIQUID CRYSTAL DISPLAY
- POWER SAVER DESIGN

A Pocket-Size Masterpiece. This small, lightweight, ultra-compact handheld transceiver is designed for ultimate ease of operation and convenient portability, but without compromising the traditional high standards of ICOM transceivers. It is only ⅔ of the size of the IC-2A.

Easy Frequency Entry. The thumb-wheel switches of our popular IC-2A handheld have evolved into rocker switches for 1 MHz/100 kHz/10 kHz frequency stepping/5 kHz up-down scanning/memory channel selection.

10 Memory Channels. The IC-μ2a has a total of 10 programmable memory channels for storage of your favourite repeaters and simplex channels.

Selectable Transmit Offset. Standard duplex split for repeater operation is ± 600 kHz using the rear panel switch. Alternatively, special-purpose frequency splits can be programmed anywhere within the IC-μ2a's frequency coverage.

Easy-to-Read Display. Operating frequency and memory channel number are displayed on a new Liquid Crystal Display with time delay on/off, soft green illumination for excellent visibility even in dark environments.

Power-Saving Design. Low dissipation circuit design combined with ICOM's special power saver circuitry reduce standby receiver operation power consumption by 75% after 30 seconds in the squelched state, greatly increasing maximum operating time without recharging.

Selectable Power Output. State of the art transmitter design provides selectable power output at 1 W or 100 mW.

Options Available. Options for the IC-μ2a include the MB-20 belt clip, HS-10 headset-microphone combination, BC-50 Desk Charger, IC-CP1 cigarette lighter cable, IC-BP20, BP21, BP22, BP23, BP24 battery packs and IC-MB16 mobile mounting bracket.

Please send me details on:
☐ IC-μ2a ☐ ICOM's full range of communications equipment.

Sender's details:

Name _____

Address _____

_____ Postcode _____

Phone: _____ (Business) _____ (Home) _____

ICOM®

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